The Journal OF THE FLORIDA MEDICAL ASSOCIATION

Vol. XXXIX MAY, 1953 No. 11

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IN THIS ISSUE

Adams-Stokes Syndrome
Sidney Grau

Evaluating Fluid and Electrolyte Therapy
John H. Kay and Alton Ochsner

Effects of Drugs on Circulation and Metabolism
Peritz Scheinberg

Fixation of Fractures of Long Bones
John T. Ellis and Samuel W. Windham

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Volume XXXIX **MAY, 1953** **No. 11**

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This Journal is not responsible for the opinions and statements of its contributors.

Published monthly at Jacksonville, Florida. Price $5.00 a year; single numbers, 50 cents. Address Journal of Florida Medical Association, P. O. Box 1018 (Fla. Theater Bldg.), Jacksonville 1, Fla. Telephone 6-1571. Accepted for mailing at special rate of postage provided for in Section 1103, Act of Congress of October 3, 1917; authorized October 16, 1918. Entered as second-class matter under Act of Congress of March 3, 1879, at the post office at Jacksonville, Florida, October 23, 1924.

THE JOURNAL OF THE FLORIDA MEDICAL ASSOCIATION
PUBLISHED MONTHLY

Volume XXXIX Jacksonville, Florida, May, 1953 No. 11

Adams-Stokes Syndrome

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ST. PETERSBURG

The treatment and subsequent management of a patient exhibiting syncopal attacks with partial or complete auriculoventricular block continues to be a distressing therapeutic problem. The symptom complex which now bears their names was first described by Adams in 1827[1] and by Stokes in 1846.[2] In the past the basic cardiac mechanism responsible for the symptoms has been considered to be ventricular standstill. More recent investigation, especially during the past 10 years, has shown that Adams-Stokes syndrome may be caused not only by ventricular asystole, but also by ventricular tachycardia or transient ventricular fibrillation. Electrocardiograms taken during a syncopal attack have been published[3,4] verifying this contention. In a recent report on the subject, Pastor and Worrilow[5] published a case illustrating electrocardiographically the various mechanism that may occur.

The following 2 cases, observed during the past year, are further examples of Adams-Stokes syndrome.

Report of Cases

Case 1.—C. W., a 52 year old white English machine operator, was first seen on May 3, 1952 because of "black out spells." A history was obtained of angina pectoris, occurring intermittently since 1943, easily relieved by nitroglycerin. The patient had never been incapacitated because of the pain, had worked at his trade constantly during the past 10 years and had recently arrived in the United States with the hope of becoming a citizen. On April 23, 1952, while working, he suddenly became dizzy, perspired profusely and then fainted. He was revived shortly and sent home. On April 28, while at home, he had five similar episodes occurring within 45 minutes. The attacks were not preceded by any premonitory symptoms; they were sudden in onset, and the patient would wake up spontaneously. He hardly ever wore tight collars, nor could he recall the attacks being brought on by sudden movements of the head. He recalled that in March 1952, while fishing, he fell off a retaining sea wall for no apparent reason and had to be pulled out of the water. He stated he was embarrassed at the time by the incident for everyone thought he was drunk. Systemic review otherwise gave negative results with the exception of an 8 pound loss in weight during the preceding six months.

Physical examination revealed a well developed, moderately obese white man, appearing well. The weight was 165 pounds. The blood pressure was 176 systolic and 100 diastolic. The pulse rate was 62 and regular. Significant physical findings were limited to the cardiovascular system. The left border of the heart was 12 cm. from the midsternal line in the fifth interspace. No retrosternal dulness was present. A rough grade II systolic murmur was heard over the aortic area with transmission to the neck. This murmur was heard best during forced expiration with the patient in the upright position. No other murmurs were elicited. There were no thrills. Peripheral pulsations were normal. There was no evidence of congestive failure.

An electrocardiogram (fig. 1) showed a prolonged P-R interval (0.22 sec.) and a widened QRS (0.13 sec.). The interpretation was normal sinus rhythm, first degree auriculoventricular block, right bundle branch block and definitely abnormal curve. Fluoroscopic examination of the chest revealed enlargement of the outflow tract of the left ventricle plus widening and elongation of the thoracic aorta.

Clinical Course: The patient was fully advised as to his physical condition. He was given ¾ grain of ephedrine sulfate four times daily and advised not to return to work for the time being. On May 8, while shaving, he suddenly "blacked out," fell and cut his chin, the wound requiring four sutures. Three days later there developed dull, persistent substernal pain which was not relieved by nitroglycerin. He was admitted to a local hospital on May 12. An electrocardiogram at this time showed a second degree auriculoventricular block with a ventricular rate of 36. Changes in the electrocardiogram from the preceding one were indicative of a recent infarction of the posterior wall. The substernal pain was rapidly relieved, and there was no recurrence. In addition to the routine management for an acute coronary occlusion, the patient continued to receive ¾ grain of ephedrine sulfate four times daily, plus 1 cc. of adrenalin in oil (1/500 dilution) intramuscularly every six hours. During his hospital stay the pulse rate varied from 30 to 48, he had no syncopal attacks, and recovery was uneventful. He was checked routinely on June 16 in the office, at which time an electrocardiogram (fig. 2) showed a complete auriculoventricular block with an idioventricular rhythm of 28. He was given maintenance therapy of ¾ grain of ephedrine sulfate every three hours, and allowed little activity. On June 34, while eating breakfast, he suddenly slumped forward and expired. Permission for autopsy was not obtained.

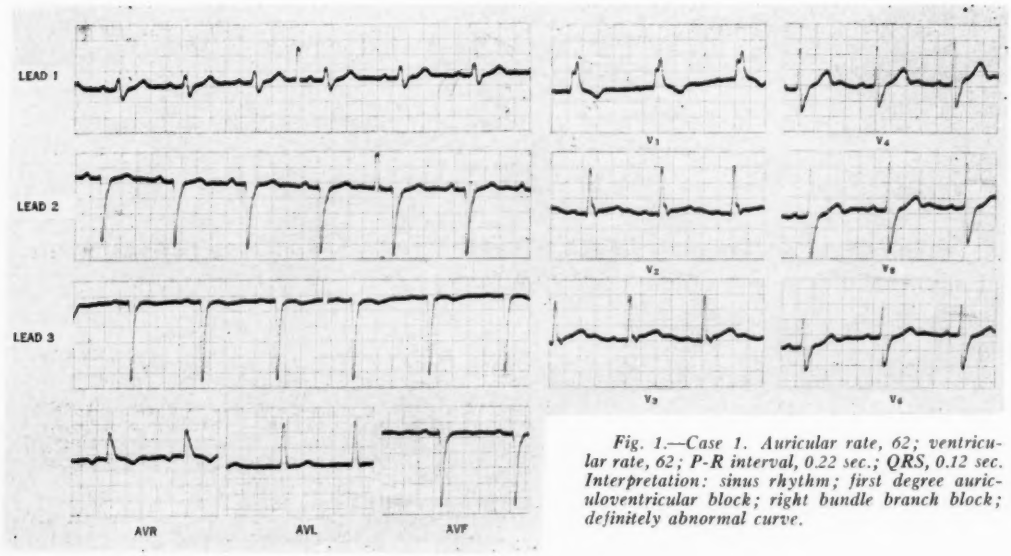

Fig. 1.—Case 1. Auricular rate, 62; ventricular rate, 62; P-R interval, 0.22 sec.; QRS, 0.12 sec. Interpretation: sinus rhythm; first degree auriculoventricular block; right bundle branch block; definitely abnormal curve.

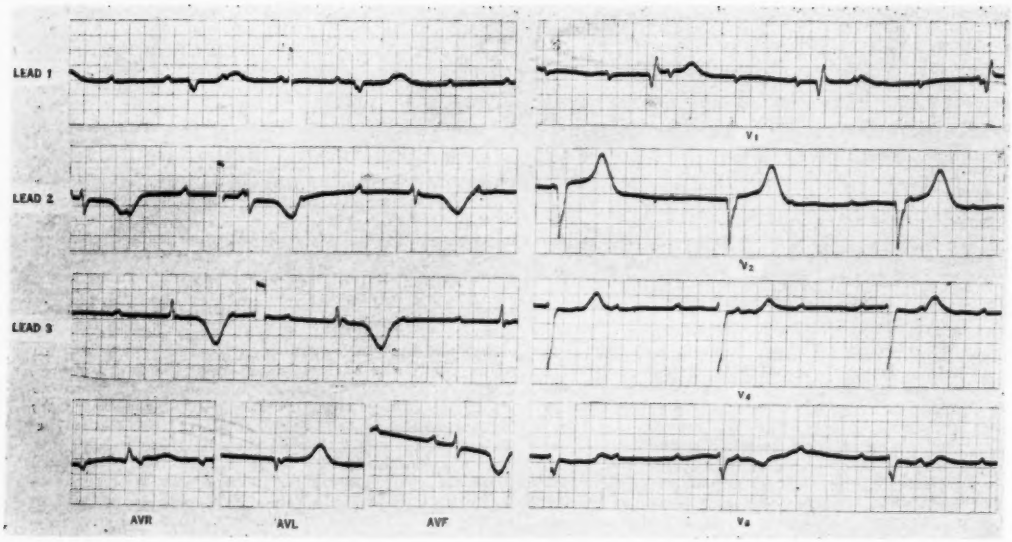

Fig. 2.—Case 1. Auricular rate, 77; idioventricular rate, 28; QRS, 0.12 sec. Interpretation: sinus rhythm; complete auriculoventricular block with the idioventricular pacemaker probably arising above the bifurcation of the common auriculoventricular bundle; shows a healing posteroseptal wall infarction; definitely abnormal curve.

Case 2.—C. O., a 64 year old white man, was first seen on May 24, 1952 in the emergency room of a local hospital as an apparent drowning victim. He had been found by friends floating face down in shallow water where he seemingly was all right just a few moments before. A friend who accompanied the patient to the hospital stated that he had "blacked out" three months previously and had been informed by a doctor at that time that he had a "bad heart."

Physical examination revealed the patient to be in extremis; breathing was rapid and shallow, pulse rate 18 and presumably regular, and blood pressure 70/?. There was pronounced cyanosis of the face and lower extremities. The eyegrounds were not remarkable; nuchal rigidity was absent; deep reflexes were hypoactive throughout, and there were no pathologic reflexes. The breath sounds were noisy with bubbling rhonchi and rales heard throughout both lung fields. These sounds prevented proper auscultation of the heart.

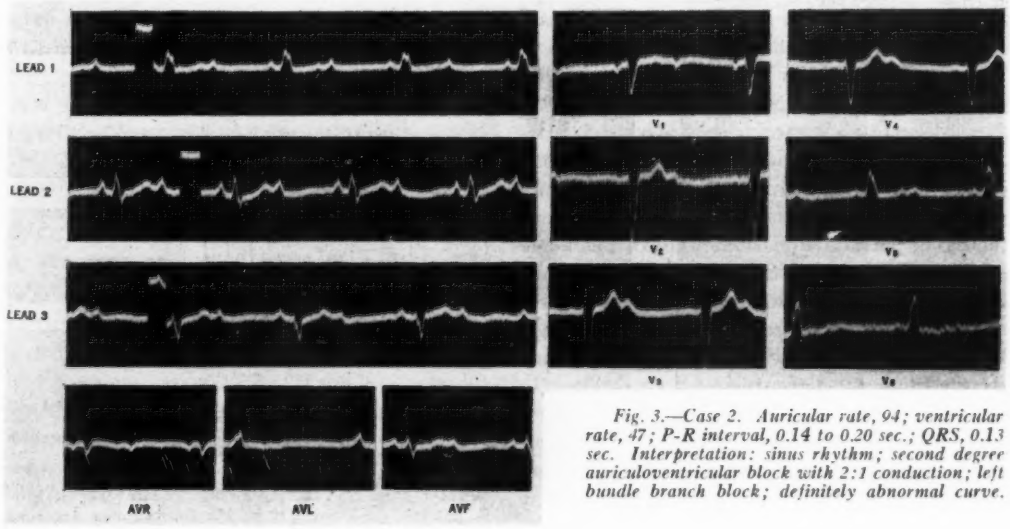

Fig. 3.—Case 2. Auricular rate, 94; ventricular rate, 47; P-R interval, 0.14 to 0.20 sec.; QRS, 0.13 sec. Interpretation: sinus rhythm; second degree auriculoventricular block with 2:1 conduction; left bundle branch block; definitely abnormal curve.

Clinical Course: Emergency therapy was instituted consisting of bronchial aspiration and oxygen by nasal catheter. The color improved immediately, the pulse rate rose to 30 per minute and the blood pressure to 100 systolic and 50 diastolic. Because of the previous "black out" spell and the rapidity of onset of the present episode plus the slow ventricular rate, it was concluded that this was another instance of Adams-Stokes syndrome. The patient was therefore given ½ cc. of aqueous adrenalin (1/1000 dilution) followed by 1 cc. of adrenalin in oil (1/500 dilution) intramuscularly. On the following morning the pulse rate was 36 and regular; the temperature was 101 F. orally.

On physical examination, there was evidence of consolidation of the lower lobe of the left lung, which was substantiated by portable x-ray examination. An electrocardiogram showed a second degree auriculoventricular block, conduction varying from 2:1 to 3:1 with the Wenckebach phenomenon; and right bundle branch block, but no evidence of recent myocardial infarction. The blood count was red blood cells 5.0 million, hemoglobin 98 per cent, and white blood cells 18,300 with 92 per cent polymorphonuclears. Urinalysis gave negative results. The blood urea nitrogen was 20.5 mg. per hundred cubic centimeters and the carbon dioxide 18.7 milliequivalents. He was given terramycin, 500 mg. every four hours. The temperature fluctuated between 101 and 103 F. for the next four days and then gradually returned to normal in the ensuing week. The physical findings of involvement of the lower lobe of the left lung also gradually disappeared. A repeat electrocardiogram, taken on May 28 (fig. 3), showed no significant change from the preceding electrocardiogram except that the Wenckebach phenomenon was no longer present. The pulse rate varied from 18 to 45 throughout the hospital stay. There were no syncopal attacks.

The patient was discharged on June 6, fully advised of his physical status. He was given maintenance therapy of ¼ grain of ephedrine sulfate five times daily. His male companion was instructed as to the use of aqueous adrenalin in case of future attacks of syncope. One such attack has occurred since discharge from the hospital. He awoke spontaneously within 30 seconds. When last heard from he was feeling well and had had no further recurrence.

Discussion

Because of the various possibilities that might exist contributing to an Adams-Stokes syndrome, every attempt should be made to ascertain the underlying cardiac mechanism before therapy is instituted. It must be realized that different mechanisms may be present during the same syncopal attack; for example, ventricular asystole may alternate with ventricular tachycardia or even transient ventricular fibrillation. When this mechanism occurs, it is difficult to decide which course of therapy to pursue. If time permits and the facilities are at hand, an immediate electrocardiogram should be taken in order to determine the arrhythmia responsible for the attack. The stethoscope may not be of benefit during an attack since ventricular asystole cannot be differentiated from ventricular fibrillation by auscultation alone.

In cases exhibiting ventricular asystole or complete auriculoventricular block with a slow ventricular rate, the drug of choice appears to be aqueous adrenalin administered either parenterally or via the intracardiac route, depending on the urgency of the case. Adrenalin in oil or ephedrine sulfate has been advocated as maintenance therapy to prevent further attacks. In the second case described, this method of control so far has appeared to be of value. In the presence of ventricular tachycardia the use of parenteral or intracardiac adrenalin may be fraught with danger.

When it has been shown that the basic mechanism resulting in an attack is ventricular tachycardia, the consensus is that quinidine is the drug of choice. The advisability of using quinidine has been seriously questioned by some investigators because of its pharmacologic actions. Quinidine may increase both intraventricular block and auriculoventricular block, and the resultant harm done to the patient may overshadow the immediate benefits. Quinidine, therefore, should be used cautiously in patients with Adams-Stokes syndrome exhibiting ventricular tachycardia. Its administration should be followed with frequent electrocardiograms. More recently, procaine amide hydrochloride (pronestyl(R)) has been advocated for the treatment of ventricular tachycardia. No reference could be found in the literature as to its use in patients with Adams-Stokes syndrome. It can be stated categorically, however, that procaine amide hydrochloride, like quinidine, may precipitate ectopic ventricular rhythms as well as depressing auriculoventricular and intraventricular conduction. Its use, therefore, should also be followed with electrocardiograms and the drug discontinued if evidence appears of progressive prolongation of the P-R interval or excessive widening of the QRS complex.

When ventricular fibrillation is established as the cause of Adams-Stokes attacks, the prognosis is most grave. Ventricular fibrillation is, with few exceptions, an irreversible condition resulting in death. At times it may be transient, but even in this form it is ominous. Most patients showing this type of arrhythmia will be dead within a year from the onset. It has been stated[6] that probably as many people die from ventricular fibrillation as from ventricular asystole and that the former condition is one of the more common causes of death in patients with disease of the coronary arteries.

Ventricular fibrillation is recognized electrocardiographically by the absence of QRS complexes and the occurrence of irregular oscillations, both in amplitude and contour. As in ventricular tachycardia, the drug of choice is quinidine, but here also the rationale in using this drug has been questioned. It has been postulated that in some cases quinidine has initiated ventricular fibrillation or if the fibrillation was already present, has perpetuated it by depressing conduction and thus maintaining the ventricular circus movement.

Possibly the best treatment for ventricular fibrillation is its prevention. With the use of the precautionary measures outlined, quinidine in prophylactic doses has proved to be of some value. Barium chloride has also been mentioned as a prophylactic measure, but has not been proved to be efficacious. As with quinidine, it is believed that barium chloride may, at times, initiate ventricular fibrillation, and it has even been used experimentally for this purpose.[7]

Conclusion

Two cases of Adams-Stokes syndrome which were recently observed have been reported. A brief review of the underlying cardiac arrhythmias responsible for this condition is presented as well as the treatment indicated for each arrhythmia.

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705 Times Building.

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to be Published

in June Issue

A Rational and Scientific Method for Evaluating Fluid And Electrolyte Therapy Postoperatively

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In view of the controversy over what procedure should be used to determine the requirements for water and specific electrolytes postoperatively, the postoperative metabolism of electrolytes was studied by the use of radioactive potassium, sodium, and phosphorus. In addition, chemical determinations of the blood levels and urinary excretion of chloride were also made. The patients used were selected from the surgical wards at random, and the procedures varied from biopsy of the breast to a resection of the head of the pancreas.

In general, the radioactive substance was given shortly before the operative procedure was begun, and its urinary excretion and blood level were followed, measurements being made at frequent intervals during the operative procedure and at somewhat longer intervals after the patient had been returned to the ward. In one case, the patient was taken to the operating room, and the usual procedures which precede anesthesia were performed without anesthesia being given and without the patient being operated upon. Excretion levels were followed in this patient in the same manner.

In was of great interest to us that the calculated figures for excretion of potassium, sodium, phosphorus and chloride showed that a relative renal shutdown occurred after all the procedures that we studied. In general, the length of time that the kidney remained shut down was proportional to the size of the operation. In the lesser procedures, the renal shutdown lasted for a matter of one to two hours. In the patient in whom no operation was performed, a similar renal shutdown occurred, but it lasted for only approximately 30 minutes.

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It was of equal importance to note that the amount of water excreted in the unit time during this period of shutdown was relatively constant at about 0.4 to 0.6 cc. per minute or 24 to 36 cc. per hour and that when the electrolytes began to be excreted in higher concentration, the amount of water excreted also increased. Thus it may be said that during this period blood levels of the electrolytes varied while the amounts excreted in the urine became relatively fixed in relation to the amount of water excreted. When these values are expressed in terms of output per minute, the curves of excretion of electrolytes and water during the period of renal shutdown vary proportionately; and as the shutdown period begins to end, the amount of water and electrolytes excreted increase proportionately. At the time when the water and the electrolytes that have been held in the blood stream and body fluids during this shutdown period have been completely excreted, the amount of electrolytes and the amount of water excreted cease to be proportional, and the urine concentration of one electrolyte may be great while that of another electrolyte may be slight. This period when water and electrolytes are no longer excreted in amounts which are proportional represents the final elimination of the accumulation of these substances in the body and a return to normal renal function.

The accompanying graph (fig. 1) shows the excretion of water and salts postoperatively in a patient who had an appendectomy for recurrent attacks of acute appendicitis. The appendectomy was performed as an interval appendectomy at a time when there were no acute signs of appendicitis. Similar graphs could be made for each of the other procedures during which these studies were made. Variations that occurred from one procedure to another were only in the length of

time that the renal shutdown lasted and in the length of time that was necessary for the kidney to eliminate the accumulated water and electrolytes. This latter phenomenon was also a function of the amount of salt and water that was administered postoperatively to a large extent. This indicated that some method of evaluating water requirements would be essential to an understanding of the need of the individual patient. While it is conceivable that deuterium studies might give such information, they were not available to us at the time; and in view of the work of others on the importance of body weight in relation to acute gains and losses of water, we began to use body weight alone as an indication of the water need of the individual patient.

The findings indicate that certain procedures which have been recommended for evaluating electrolyte and water requirements during the postoperative period can be of no value. It is obvious that urine chloride level and urine specific gravity can be of no benefit since during a variable postoperative period after all but the most minor procedures the output of electrolytes is proportional to the output of water and independent of the blood level. Thus the low specific gravity urine that occurs during the renal shutdown would suggest that electrolytes would be needed; however, determination of the electrolyte levels of blood indicates that they are rising, as a rule, during this period.

Similarly, chloride intake and output are useless because, even though the chloride loss is known to the nearest milligram, replacement is a matter of concentration in water as well as of total weight. It will be of no benefit to the patient to replace, milligram for milligram, the chloride which he loses unless one is able to determine the actual amount of water which should be replaced with the chloride. Thus in the last analysis, it becomes obvious that the concentration of salt in urine is a function of the ability and the activity of the kidney at the time rather than of the absolute blood level in the individual patient at that time.

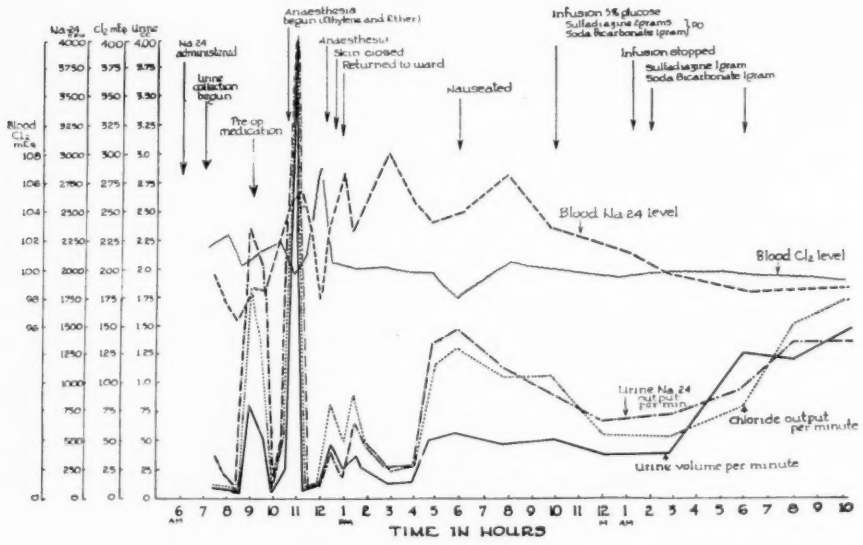

Fig. 1.—The excretion of water and salts postoperatively in a patient undergoing appendectomy is charted in this graph.

Formula

For these reasons, we have begun to use a fairly simple formula for calculation of salt and water need postoperatively. It is based on the following measurements: the daily water loss of the patient is determined by weighing the patient each day, beginning preoperatively and continuing postoperatively until the time that all danger of renal failure or water retention has ceased; water is replaced on the basis of 500 cc. per pound of lost weight; chloride and bicarbonate replace-

ment is given as indicated by the blood levels; sodium chloride and sodium bicarbonate are used. In order not to overload, chloride and sodium bicarbonate are given on the basis of 70 per cent of the dose calculated for the optimum replacement on the basis of total body weight. This method appears to be necessary since intercompartmental shifts are sometimes extremely slow.

For bicarbonate, the formula that we use is: $mM(NaHCO_3) = (60 - CO_2) \times .7W2.24$ where CO_2 is the serum carbon dioxide content and W is body weight in kilograms. One millimol of sodium bicarbonate equals 0.084 Gm.

For chloride the formula is: Gms(NaCl) = (592 - NaCl) 10 x 0.7 x W/1000 where NaCl is serum sodium chloride in milligrams per cent and W is weight in kilograms.

This amount of chloride and bicarbonate is given in whatever water is indicated by the weight loss of the patient. Finally, 48 hours after renal output begins to exceed 0.4 cc. per minute — which represents about 600 cc. in 24 hours — it is necessary to begin to maintain potassium at the rate of 1 Gm. per day. If the patient is unable to take oral feeding, potassium must be maintained by parenteral fluids. In all such cases glucose, 5 to 10 per cent up to 100 Gm. daily, is used to supply calories.

A Review of the Effects of Various Drugs On Human Cerebral Circulation and Metabolism

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A wide variety of drugs has been used by physicians in the treatment of acute and chronic manifestations of cerebral vascular disease and other brain disorders with the hope of producing dilatation of cerebral blood vessels and thereby increasing the circulation to the brain. For the most part such usage has been empiric and based upon observations of the effects of these drugs in other parts of the body. The development of the nitrous oxide technic for measuring cerebral blood flow by Kety and Schmidt[1] in 1945 has permitted scientific evaluation of the physiologic effects of most of the commonly used so-called vasodilators on cerebral circulation. The nitrous oxide technic is an application of the Fick principle which permits measurement of cerebral blood flow in milliliters per minute per gram of brain tissue; from this basic information, cerebral oxygen and glucose consumption, cerebral vascular resistance, and other important cerebral metabolic functions can be measured.[1, 2] In all instances the studies were carried out in a similar manner, with the control observations made immediately prior to the administration of the drug being studied.

Of all the drugs studied, the most effective in increasing cerebral circulation are those which increase the carbon dioxide content and tension of the blood. Accumulating evidence indicates that arterial carbon dioxide tension is the most important chemical factor in the regulation of cerebral circulation. Inhalation of a gas mixture containing 5 per cent carbon dioxide results in a 70 per cent increase in cerebral blood flow, with no change in cerebral oxygen consumption, but a corresponding reduction in cerebral vascular resistance.[3] This increase in cerebral blood flow results if the carbon dioxide gas mixture contains varying quantities of oxygen, from 21 per cent to 95 per cent. Increasing the concentration of carbon dioxide in the gas mixture from 5 per cent to 10 per cent results in even greater cerebral vasodilatation, but the excessive hyperventilation induced by the larger concentrations of carbon dioxide makes it possible to administer the gas for only a few minutes at a time, whereas most persons can comfort-

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ably inhale a 5 per cent carbon dioxide mixture for as long as 20 to 30 minutes, and the inhalation can be repeated at frequent intervals. It is of interest in this respect that simple overventilation, with resultant blowing off of carbon dioxide and reduction in arterial carbon dioxide tension, produces intense cerebral vasoconstriction,[4] a phenomenon which may be partially responsible for some of the clinical symptoms of the hyperventilation syndrome and for the appearance of abnormal electroencephalographic patterns and even convulsions in epileptics who undergo hyperventilation.

Intravenous administration of 3 per cent $NaHCO_3$, resulting in metabolic alkalosis with increased arterial carbon dioxide tension, produces an increase in cerebral blood flow similar in magnitude to that resulting from inhalation of 5 per cent carbon dioxide.[5] Administration of $NaHCO_3$ in clinical practice must be tempered by the knowledge that the $Na+$ ion results in fluid retention, which could be harmful in certain types of patients. Though both CO_2 and $NaHCO_3$ are powerful cerebral vasodilators, they have little or no influence on other parts of the peripheral vascular tree, indicating the specificity of response of cerebral vessels to certain chemical stimuli.

Papaverine administered intravenously in doses of 0.2 Gm. results in only moderate cerebral vasodilatation, with a 13 per cent increase in cerebral blood flow.[6] The action of the papaverine is probably directly on cerebral vessels, though it is well known that this drug also produces vasodilatation in other parts of the body. Papaverine can be given orally in fairly large quantities and at frequent intervals, and although its effect by this route of administration has never been accurately measured, it is assumed that it is effective as a mild cerebral vasodilator.

Intravenous nicotinic acid, a drug widely used in the treatment of vascular disease of the brain, produces no measurable change in cerebral blood flow or vascular resistance despite the pronounced facial flush which results from it.[7] This is another indication that inferences concerning the effects of any drug on cerebral circulation cannot be drawn from its apparent effects on circulation elsewhere in the body. It is difficult to explain many of the reported beneficial clinical effects of nicotinic acid in the treatment of cerebral vascular disease, but the psychologic effect of the intense facial flush must be remembered.

Priscoline is another drug which produces considerable increase in circulation to the skin of the extremities, and probably also to the muscles, with no apparent beneficial effect on cerebral circulation.[8] Priscoline may actually produce mild cerebral vasoconstriction. Aminophylline and caffeine are both frequently used in the treatment of cerebral vascular accidents, yet both drugs result in cerebral vasoconstriction and reduction in cerebral blood flow,[9] indicating that they may actually be prejudicial to the patient. This result is also true of 100 per cent oxygen by inhalation,[3] which is frequently used in the treatment of all varieties of brain disorders. It does not imply that oxygen is harmful when its use is indicated, such as in diminished arterial oxygen saturation due to impaired oxygen transfer across the pulmonic alveolar-capillary membrane, but it does indicate that 100 per cent oxygen is not harmless and should not be used indiscriminately.

Intravenous histamine produces no significant effect on cerebral blood flow and does not result in dilatation of cerebral vessels unless there is a concomitant fall in peripheral arterial pressure.[9] It would appear therefore to be of little value in the treatment of disorders of cerebral circulation. It is also somewhat surprising to learn that moderate amounts of ethyl alcohol, sufficient to result in mild intoxication, produce no effect on cerebral blood flow and metabolism, although larger quantities greatly depress cerebral metabolism.[10] This finding would indicate that the use of whisky to produce "cerebral stimulation" may have adequate psychiatric justification, but there is no evidence to indicate that it results in cerebral vasodilatation or increased metabolism of brain cells.

Procaine has been used intravenously by some physicians in the treatment of cerebral vascular disorders, but this drug has no appreciable effect on cerebral blood flow. Indeed, it may actually induce moderate cerebral vasospasm.[11] The discussion of procaine usually leads to a consideration of stellate ganglion block by procaine, a procedure widely used in the treatment of "strokes," both acute and old. It has been demonstrated that stellate ganglion block produces no increase in cerebral blood flow or alteration in cerebral vascular tone in normal persons and in patients with varying degrees of cerebral vascular disease.[12,13] As a matter of fact, there is no objective evidence that the sympathetic innervation of the cerebral vessels plays any role in regulating the tonus of those vessels. It must be remembered, however,

that physiologic studies have not been made on subjects with reactive cerebral vessels that may be in a state of increased tone due to some harmful stimulus, such as a young person with mitral stenosis and resulting cerebral embolism. The indiscriminate use of stellate blocks must be deplored, however, for the procedure is not without hazard, and the presence of cerebral hemorrhage, a distinct contraindication to stellate block, cannot always be detected clinically even by the most practiced observer.

Summary

In summary, the effects on cerebral circulation and metabolism of drugs commonly used in the treatment of cerebral vascular disease have been reviewed. Though laboratory observations and clinical results do not necessarily agree, the physician still should choose his therapeutic armamentarium with a view to providing a definite physiologic result, rather than depending upon empiric procedures which may derive from poorly controlled, inconclusive clinical observations. Much is yet to be learned concerning appropriate therapy for cerebral vascular disease and other brain disorders, but the intelligent clinical application of drugs and procedures shown to be physiologically sound may provide the beginning of a solution to some of these problems.

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Proceedings of Seventy-Ninth Annual Meeting

Scheduled for Publication

in the June Issue

VOLUME XXXIX
NUMBER 11

Intramedullary Fixation of Fractures of Long Bones

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The procedure of intramedullary fixation in fracture was first reported by Lambotte in 1907. He employed screws in fractures of the clavicle and in subtrochanteric fractures of the femur. Ivory and bone pegs were employed by König in 1913. In 1918, Groves reported 3 cases of fracture in the proximal third of the femur which had been fixed by the use of medullary nails. According to Soeur, intramedullary Kirschner wires were used by Dennis and also by Jolley for fractures of bones of the forearm, metatarsals, and other small bones. In 1937 and again in 1939, Rush and Rush reported the use of Steinman pins in the intramedullary canal of the ulna and of the femur. Lambrinudi in 1940 reported the use of wires in the forearm and multiple wires in the femur. In the same year Murray reported the use of wires in the clavicle. In 1947, Wheeler, cited by Street, reported his experience with femoral fracture fixation using multiple intramedullary wires.

In the early nineteen thirties, Böhler predicted that treatment similar to the internal fixation of fractured femoral necks would, at some time, be used in the treatment of fractures of long bones. Küntscher stimulated worldwide interest in this method of fracture fixation when he introduced to the medical profession in 1939 the use of intramedullary pins similar to those in use at the present time. His pins were made of stainless steel, were rigid enough in construction to hold the fractures in alignment and occupied most of the intramedullary canal.

Because of the delay in medical periodicals reaching this country during the war years, it was not until 1945 that this method of treatment began to receive much attention by American doctors. The Hansen Street diamond-shaped nail was described and introduced in 1945. It was used in 4 cases of fractured femur that year. Westerborn introduced his modification of the Küntscher nail in 1948, and the Rush round pin for spring type fixation was described and introduced in 1949. Thus, in spite of the fact that this method of treatment was reported as early as 1907, most of the work has been done during the past decade.

Advantages of the Rush Nail

We began using intramedullary fixation of fractures of long bones in 1949. This was soon after Rush's nail was introduced, and after careful study of the information available at that time, it was decided that the Rush nails would be the type we would use for internal fixation. To us, the advantages of the Rush nails are: (1) The versatility of the nails — they can be used in all types of long bone fractures. (2) The armamentarium necessary to fix fractures with the nails is minimal. (3) The relative ease in choosing the proper size and length of nail to be used makes it unnecessary to have a large collection of nails on hand in order to fix all fractures sustained by patients. (4) The Rush nail does not occupy and completely fill the medullary cavity so that muscle contraction can be depended upon to bring about the important factor of continuous compression of the bone ends or fragments so necessary to bone healing. (5) The simple hook construction of the proximal end of the Rush nail prevents it from protruding into the soft issue with the complications resulting therefrom. These complications have been described as limitation of hip motion, bursitis, and the occurrence of bursal sacs about the end of the protruding nail. The hook also can be partially embedded in the bone, thereby preventing migration of the nail.

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Read before the Florida Association of Industrial and Railway Surgeons, Thirteenth Annual Meeting, Hollywood, April 27, 1952.

Indications for Intramedullary Fixation

The indications for the use of intramedullary fixation are still of paramount importance if the relatively new method of fracture fixation is to maintain its place in fracture treatment. They should be rather clearcut and followed. Some enthusiasts for this method of treatment use it for any type of fracture. This indiscriminate use is certain to cause criticism of the method in spite of its apparent advantages over the conventional methods of fracture fixation. This method is most effective in fractures of long bones in their middle two thirds. The ideal fracture for fixation is the fractured femur at the isthmus or narrowest portion of the intramedullary canal, which is usually just below the junction of the upper and middle third. Böhler limited intramedullary fixation of femoral fractures to the area below 7 cm. from the tip of the great trochanter and 7 cm. above the knee joint. These are not absolute limits, but should serve to indicate that the closer the fracture line approaches either extremity of the bone, the less secure is the fixation and the more likely is the occurrence of postoperative complications, fragment displacements and poor healing.

Soon after the introduction of the method, spiral fractures were thought to be contraindications for this method of treatment. This opinion was due to the frequent telescoping and displacement of fracture fragments. Now by the use of stabilizing screws or encircling Parham band or wire, these fractures can be satisfactorily treated by this method. In the use of supplementary fracture fixation material, one should be sure that the screws do not engage and fix both the upper and lower fracture fragments so that one of the prime advantages of the method, namely, continuous compression of the fracture fragments secondary to muscle contraction, would be neutralized. These remarks are as applicable to comminuted fractures as to spiral fractures, and here again, supplementary fixation material should be used to fix the major comminuted fragments to the principal fracture fragment. Segmental fractures are particularly amenable to this form of treatment, since it is easy to fix the fragments securely by threading them over the intramedullary nail.

When intramedullary fixation was first introduced, compound fractures were thought to be contraindications to the use of this fixation method. At the present time we do not hesitate to fix compound fractures immediately, being certain, however, that debridement and proper toilet of the wound are carried out at the time of fracture fixation and that the patient is protected adequately by antibiotic therapy. We have had no regret for adopting this attitude, and in all instances the soft tissue wounds and fractures have gone on to uneventful healing. To date, we have had no postoperative infections in our cases.

Another ideal situation for intramedullary fracture fixation is in patients with multiple injuries. Intramedullary fixation is ideal in the treating of delayed union and nonunion. It is true that bone graft and bone chips are frequently used as supplementary aids in the healing of ununited fractures, but the intramedullary fixation maintains the fracture in alignment and produces a much more ideal situation in which to use the supplementary procedures.

Advantages and Disadvantages of Intramedullary Fixation

The advantages of intramedullary fixation are as follows: (1) No external fixation is necessary except when the fractures are in close proximity to joints, and even in these situations, with the more recent methods of fixation, casting is unnecessary. (2) The adjacent joints can be kept mobile, preventing limitation of motion and periarticular adhesions. (3) The patient can be made ambulatory early in the treatment, thereby reducing hospital stay, hospital cost and nursing service. (4) There is no muscle atrophy due to disuse because of the maintained activity in the extremity containing the fracture, and because of no joint stiffness or muscle atrophy no rehabilitation is necessary. The patient continues to use his muscles voluntarily and in cases in which voluntary use is not performed, it is encouraged and insisted upon. In spite of the fact that full weight bearing is not permitted in the immediate postoperative period, it is usual that patients with lower extremity fracture be ambulatory at seven to 10 days, using crutches. (5) This method of fixation eliminates the detrimental factors of the traction and sharing forces at the fracture site, but maintains the favorable pressure factors through muscle action bringing the fracture fragments into close and constant apposition. (6) No distraction as a result of absorption at the bone ends occurs. When external fixation in the form of plates or screws is used, it is not unusual for absorption at the bone ends to occur, resulting in separation of fracture

fragments due to the rigid fixation of this form of treatment, thereby often resulting in delayed union or even nonunion.

The disadvantages of this method of fixation are: (1) It requires open operation. In modern hospitals with adequate operating room facilities, this should not present a problem because infection should be extremely rare. Some advocate closed reduction and fixation by fluoroscopic control. We are opposed to this method of treatment, and think that all operations should be performed as an open procedure. (2) In the tibia and bones of the forearm there are differences in the width of the medullary canals in the ends and center of the bone. For this reason pins of uniform size may permit lateral displacement and axial rotation at the fracture site. With supplementary fixation and use of multiple pin procedures, this disadvantage can be eliminated. (3) It produces trauma at the vital bone healing area — the fracture site. It is known that the presence of a hematoma at the site of fracture is an adjunct to bone healing. When this procedure is used, the hematoma is removed. (4) There is a controversy over the question of whether or not intramedullary fixation hinders callous formation. Early in the use of this method it was thought that it does. Recent experimental work tends to disprove this original opinion.

Selection of Cases

In the selection of cases for this type of treatment, children are usually excluded. Open reduction is rarely indicated, and a pin should not unnecessarily be driven across the epiphyseal line for fear of growth disturbance. Under certain circumstances in which the fracture is such as to justify the risk, this procedure might be used; however, in treating essentially long bone fractures, which is the subject under discussion, it has no place in the treatment of this type of fracture in children. Age is an indication rather than a contraindication for this type of fixation. It is not unusual to have elderly patients enter the hospital in moderate to severe shock secondary to a long bone fracture and to have them actually improve as soon as the fracture has been stabilized. The deleterious result of bed rest in the aged is known to all, and this method of fixation permits early ambulation, thereby avoiding the complications of bed rest in this age group.

We strongly believe that treatment of fractures by this method of fixation should be carried out as soon after the accident producing the fractures as possible. Shock must be treated and the patient's general condition made ready for surgery before the operative procedure is performed, but as soon as the general condition permits, we think that the fracture should be openly reduced and fixed. If these fractures are seen late, standard traction methods should be used until the swelling about the fracture site has disappeared, but this form of treatment should not be continued until callous formation has begun.

Technic

The technic used in intramedullary fixation is relatively simple and will be briefly described for fixation of the femur, the tibia, the radius and ulna, and the humerus.

In the fixation of femoral fractures the patient is placed supine on the operating table, a lateral incision is made over the fracture site exposing the major fracture fragments. The Rush nail is introduced through either one of two points, namely, the superior surface of the great trochanter or the lateral surface of the bone just below the great trochanter. A small stab wound is made over the point of entrance, and a drill hole slightly larger than the diameter of the pin is made in the cortex of the bone. The point of the pin is pushed through this drill hole obliquely until it enters the medullary canal. Little resistance is met until the gliding surface of the sled runner point strikes the medial cortex of the femur. It then begins to glide down the intramedullary canal and is usually easily driven down the bone. It is driven down the medullary canal until the point presents at the site of fracture. The fracture fragments are then brought in line, the sled runner of the pin is introduced into the distal fracture fragment and is simply driven into place by light taps on the head of the pin with a mallet. An effort is made to align perfectly the fracture fragments before the pin is completely driven in. When the proper length of pin has been selected, the hooked head lies beneath the soft tissue and firmly grasps the cortex of bone, thereby preventing axial twisting of the pin. The wound is then closed. We prefer chromic catgut in the fascial layers and either nylon or silk in the skin.

In the case of the humerus, open operation is performed through as small an incision as possible. In the technic of all pin applications subperiosteal dissection of the bone at the site of fracture is unnecessary. The fracture fragments of the humerus are exposed, and a small stab wound is made over the tuberosity of the humerus in line

with the fibers of the deltoid muscle. A 3/16 inch drill hole is made at this point in a slightly oblique direction; through this drill hole the sled runner point of the Rush nail is introduced and the nail is gently tapped with a mallet until the sled runner presents itself at the site of fracture. The fracture fragments are then accurately reduced; the sled runner is directed into the medullary canal of the distal fragment and is driven home. The same position and advantages of the hooked head are applicable to the humerus as to the femur. Because of the differences in the size of the intramedullary canal, a 1/4 inch nail is usually used in the femur whereas a 3/16 inch nail is used in the humerus.

In the case of the tibia, a similar technic is used and either a 3/16 inch or 1/4 inch nail is used, depending on the size of the medullary canal. An oblique drill hole is placed in the surface of the tibia just below the tibial tuberosity, and the same general principles of driving the nail into place are used.

In fixation of fractures of the radius and ulna, certain dynamics of muscle power must be considered. In fractures of the shaft of the radius in its upper third, the upper fragment is supinated while the lower fragment is pronated. Thus, when longitudinal pinning is done, the pin should be driven into the upper fragment of the radius with the forearm in supination. In fractures of the lower two thirds of the radius, this position of fracture fragments is not found because of the balancing action of the muscle upon this portion of bone. The bone is usually in a neutral position in regard to supination and pronation, and consequently these fractures should be pinned with the radius in a neutral position. In fractures of the ulna these muscle imbalances are not present, and there is the lack of the tendency toward wide separation of the fracture fragment as is noted in radial fractures. Thus, the position of the forearm is of no special importance. In fractures of both bones of the forearm the typical radial fracture displacements as described tend to be present, and there is a tendency toward overlapping of the fracture fragment. The lower fragments also tend to approach each other because of muscle action. These characteristic positions of the fracture fragments must be kept in mind to perform properly intramedullary fixation.

A 2/16 inch nail is usually used in the fixation of lower arm fracture fragments. The arm is draped over the chest, and we prefer open reduction in all cases. Ulna fracture fragments are exposed through a medial incision. A small stab wound is made over the posterior surface of the olecranon process, and a 2/16 inch drill hole is made in the cortex of the bone. Through this opening a pin of sufficient length to extend well into the distal fragment is introduced and driven into the bone until the point is seen to emerge at the fracture site and by angulation and manipulation, the fracture is reduced and the pin is driven well into the distal fragment. In the ulna, because the bone is straight, there may be some tendency of the distal fragment to rotate when the fracture is located in the lower portion of the shaft, but if the pin is driven well into the distal fragment, rotation is not likely to occur. In radial fracture the fracture site is exposed through a posterolateral incision, and with the wrist flexed the styloid end of the radius is palpated. Over this point a stab wound is made and a 2/16 inch drill is then passed vertically into the bone until the cortex is broken and until the drill point is in the medullary canal. A pin of suitable length is then introduced through the drill hole until it strikes the distal cortex of the shaft. The medullary canal of the radius is curved, frequently being slightly S shaped, and as the pin is tapped with a hammer, it may rotate as the sled runner point glides up the uneven contour. If the driving of the pin becomes difficult, simple rotation of the pin or withdrawing the pin a short distance, rotating it and driving it in a different direction will usually permit it to be easily driven up the canal. With the forearm in positions described for the different radial fracture sites, the pin is then driven into place. All wounds are then closed.

Postoperative Care

Postoperative care is greatly simplified. We use no compression type dressings in any extremities in which intramedullary nailing has been performed. When the lower extremity is involved, the patients are permitted out of bed using crutches on the seventh to tenth day, and when reluctance on the part of the patient is encountered, ambulation is insisted upon. At the end of approximately three weeks, partial weight bearing is permitted and full weight bearing is allowed in six to eight weeks. In forearm fractures the patient is permitted out of bed on the first postoperative day, and the arm is simply carried in a sling. In humeral fractures, this same procedure is followed. The remainder of the postoperative care is simply that of the care of the soft tissue

wound. We insist that all patients eat a high protein diet because of the known tendency for the development of a negative nitrogen balance and hypoproteinemia in patients subjected to traumatic wounds.

The pins are left in place until there is roentgen evidence of solid union regardless of the time required. We are conservative in the time element of their removal as we believe that the presence of the pins in the intramedullary canal produces no harm and therefore there is no hurry about their removal. In forearm fractures, the patients occasionally complain that complete extension of the elbow joint or dorsiflexion of the wrist joint is somewhat hampered by the presence of the hooked head of the pin, but otherwise they are unaware of the presence of the pin. It should be stressed again that the pins are left in place until solid bony union, as demonstrated by roentgenogram, has occurred.

Complications

Complications following this method of fracture fixation have been extremely few in our hands. In tibial fractures there has been an occasional case in which excess callous formation has occurred at the fracture site. We believe that this is due to the trumpet shape of the medullary canal, thus permitting excessive motion at the fracture site. It would be well in these fractures for the patient to wear a light cast for a period of time until the fracture fragments have become partially fixed, thereby preventing excessive motion, and in so doing prevent excessive callous formation.

One complication which has been somewhat distressing in our cases has been the rather massive and somewhat persistent postoperative edema in the extremity involved. This has not occurred in fractures of the humerus, but has predominated in both bone fractures of the forearm and in fractures of the tibia. We do not use elastic support of the extremity and do not believe that this type of support prevents the formation of this postoperative edema; yet we have no adequate explanation for its occurrence. We have seen no specific ill effects come of this edema in that it does gradually disappear before chronic skin changes, ulceration, or other changes develop, but it is an annoying, unexplained complication. Most of the complications as described in the literature seem to be avoided through the use of the round spring type Rush nail.

In our cases there has been no postoperative infection. We have had one pin to break in a humeral fracture at the fracture site. In this case, nonunion had occurred secondary to a plating procedure on the humerus. The plate had been removed and an intramedullary pin put in place, and several months after its application and in the presence of a persisting nonunion the pin was broken. The pin was removed, its removal being a relatively easy procedure, and it was replaced by another pin of a similar type. In another humeral fracture there was bowing at the fracture site, lateral displacement of the fracture fragments and a deformity created at the fracture site, but this result was secondary to the improper application of the fixation material and cannot be considered as a defect of the method when properly performed. To us, the fractures heal at about the same rate with this method of treatment as with the conventional methods of fracture therapy.

The cases reported illustrate a number of the principles, hazards and complications involved in this type of fracture fixation.

Report of Cases

Case 1. — Mr. B. M. B., a 17 year old, white youth, was hospitalized on March 10, 1950 because of multiple injuries sustained when the scooter on which he was riding was struck by a truck. On arrival at the hospital he was in moderate shock and had a compound fracture of the middle third of the right femur with bone protruding through the soft tissue defect and a compound, comminuted fracture of the right patella. The examination otherwise gave essentially negative results. He arrived at the hospital at approximately 7 p.m., was given 1,000 cc. of whole blood and prepared for surgery. At approximately 8:30 p.m. on the night of admission, he was operated upon. The compound wound was thoroughly debrided, and a 1/4 inch Rush intramedullary nail was put in place in the compound fractured left femur; the compound fractured patella was debrided, several small comminuted fragments of bone were removed, and the patella was wired. The postoperative course was entirely satisfactory, and no evidence of infection developed.

This case illustrates the use of a Rush nail in a youth 17 years of age who had a compound fracture of the femur and an additional compound fracture of the patella on the same side. The epiphyseal line in the upper end of the femur had closed, and because of this closure he was treated as if he had been an adult. The epiphyseal line at the distal end of the femur had not closed, and it was anticipated that the nail would not bridge that portion of the bone. It did, however, and up to the present time, he has had no adverse effect on epiphyseal line closure or bone growth. Through the use of this method of treatment he was able to follow the routine schedule of knee joint movement as used in fractured patella. Had some type of cast treatment been used, it is believed that he would definitely have had at least a pronounced limitation of motion at the knee

joint. At the present time the patella and femur are solidly united, and there is no limitation of motion at the knee joint. Figure 1 illustrates the original fractures and their progress until united. We believe strongly that the early treatment beginning with adequate resuscitation from shock, thorough debridement and cleaning up of the compound wound, fixing of the fracture fragments in position and early motion at the knee joint produced the excellent result obtained in this case.

Fig. 1. — The fracture as seen on admission and the end results.

Case 2. — Mr. L. P. S. was hospitalized on Aug. 16, 1949 because of an injury to the right femur, sustained on June 14 when the left leg was struck by a log, pinning it between the log and the ground. He was immediately admitted to another hospital, where he was treated by skin traction for 10 days. He was then anesthetized, and a cast, the remnants of which can be seen on close inspection of figure 2, was applied to the injured leg. It was the patient's impression that he had no leg shortening and the toes and patella were in proper position prior to casting. Soon after the cast was applied, he noticed shortening and internal rotation of the right lower leg. On his arrival at Frasier-Ellis Hospital, the right leg could only be described as in a frog leg-like position. On examination there was a large, palpable, bony deformity in the middle third of the right femur with the leg bowed, giving the impression of a frog's leg. The muscles of the thigh were markedly reduced in size as was true of the muscles in the lower leg. There was an infected ulcer on the medial aspect of the right knee joint area which measured approximately 4 by 2 cm., and foul-smelling pus was exuding from the area of ulceration. On the anterior, lateral, medial and posterior aspects of the lower two thirds of the right lower leg there were encrusted abrasions measuring up to 4 by 5 cm. The right foot was in a pronounced equinovarus position and fixed in that position.

On the day of admission the cast was removed, the leg was thoroughly scrubbed, and the infected ulcer was debrided and dressed; a Steinman pin was placed through the os calcis and 18 pounds of weight were applied as skeletal traction. This was continued for four days with some slight correction of the deformity at the fracture site. The infected ulcer and skin were treated until clean and granulating, and on August 26, 10 days after admission, he was operated upon. The fracture site was exposed, the callus excised, the bone end freshened, and the medullary canal opened; a Rush intramedullary nail, by the technic described, was then put in place. The postoperative course was uneventful, and on Oct. 30, 1950 he was finally persuaded to return for follow-up study. A roentgen examination at that time demonstrated solid bony union. He had been ambulatory since 10 days following the operation, and the limb had been bearing-weight for an undetermined period of time. The only residual disability was in the right ankle, where there was an estimated 10 per cent limitation of dorsiflexion of the right foot and the right lower leg. Treatment was offered for this, but the patient was completely happy with the result and refused further treatment.

This case illustrates what will always happen when such a cast as was applied to this leg is applied to a fractured femur. We all know that adequate spica casts will not hold a fractured femur in position. In spite of the fact that the fracture was nine weeks old, the medullary canal could be easily opened, and the application of the nail was relatively easily performed. This method of treatment provided a convenient and completely satisfactory method of treatment in this badly deformed, neglected, fractured femur.

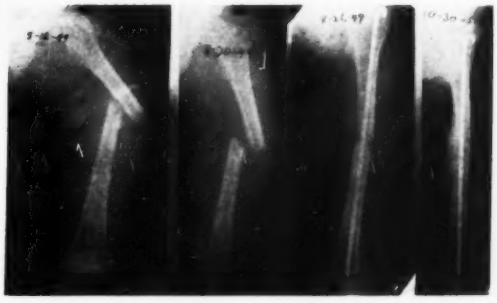

Fig. 2. — The position of the fracture fragments when first seen, following skeletal traction, immediately postoperative, and when the fracture had healed.

Case 3. — Mrs. E. B. S., a 38 year old, white widow, was hospitalized on May 22, 1950, approximately 18 hours after injury. She had sustained injury to the left forearm, upper part of the left leg and scalp and multiple soft tissue injuries of the extremities and body. Roentgen examination demonstrated a simple transverse fracture of the middle third of the left ulna, which was in satisfactory position in a plaster of paris cast. Also demonstrated was a segmental fracture of the upper half of the left femur with the proximal fracture site in the subtrochanteric area and the distal fracture site at approximately the junction of the upper and middle third of the femur. The intervening fracture segment was split, and there was a large piece of bone broken off of the proximal fracture fragment just above the proximal fracture site. Traction was applied to the fractured femur for a trial period with completely unsatisfactory results.

Fifteen days after hospitalization, the patient was operated upon, and the femoral fracture sites were exposed through a long lateral thigh incision. The comminuted fragment located at the proximal fracture site was fixed

in position with an SMO screw, and a Rush intramedullary nail was put in place bridging both fracture sites. The piece of bone comprising the segmental fracture was found to be split and separated, and after the nail had been threaded through the segment, it was accurately reduced and fixed with the use of a screw. A circular wire was then applied around the distal end of the segment and the distal fracture fragment, because of the somewhat spiral fracture at that site. Because of the extensive surgical procedure performed, the wound was drained. It is questionable whether or not this was necessary or proper. Because of the closeness of the fracture fragment to the upper end of the femur and the presence of the intervening fracture segment, this patient was put in a single leg spica cast in which she stayed for approximately eight weeks.

In spite of the cast, and in spite of the circular wiring, a slight telescoping at the distal fracture site occurred. On close inspection of figure 3, it can be noted that the intramedullary nail was too short to be considered perfectly applicable. Healing was effected, and in spite of the fact that the patient was only in a cast for approximately eight weeks, her only disability at the present time is a moderate limitation of motion at the knee joint. The lesion is now completely healed, the pin has been removed, and she is back at work as a secretary. She has the disability noted, but there are no complaints referred to the femoral fracture.

This case illustrates the effectiveness of intramedullary fixation in segmental fractures as well as the use of encircling wire and screws as adjuncts in fixation.

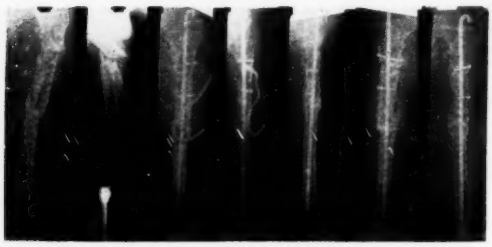

Fig. 3. — The original position of fracture fragments, the immediate postoperative condition of these fragments, and periodic roentgen examinations during the course of healing until the fracture had solidly united.

Case 4. — J. G., a 47 year old, married, Negro farmer was hospitalized on July 14, 1950 because of an injury to the left upper arm, which was sustained approximately six weeks before admission when he fell from a height of 8 feet, landing on his left hand and forearm. Roentgen examination at the time of injury demonstrated a fracture of the left humerus. The arm was placed immediately in a hanging cast. Two weeks after the application of the cast a roentgen check-up examination was made, and distraction at the fracture site was demonstrated. The cast was removed, and a second lighter hanging cast was applied. He had worn the second cast for approximately four weeks when first seen by us. Roentgen examination demonstrated a continued distraction, a moderate amount of callous formation about the fracture site, poor alignment of fracture fragments, and severe swelling in the left hand and forearm.

On his admission to the hospital the hanging cast was removed, and he was operated upon. The fracture site was exposed through a lateral incision, the excess callus was removed, the bone ends were freshened, and a 3/16 inch Rush pin was put in place by means of the technic described. Figure 4 illustrates the original and final positions of fracture fragments.

The patient was discharged from the hospital on July 18 with his arm in a sling but with no other type of fixation. The fracture went on to solid bony union with no limitation of motion at the shoulder or elbow joint.

This case illustrates the hazards of hanging cast treatment of fractured humeri. On close scrutiny, in spite of the fact that the fracture is in ideal position, the pin applied could have been a little longer and the comminuted fractured fragment on the medial aspect should have been fixed in position with a circular wire or a Parham band. Because of the relatively weak muscle pull in the upper arm, telescoping did not occur in this case. Had this fracture been in the femur, we would have definitely expected such an occurrence.

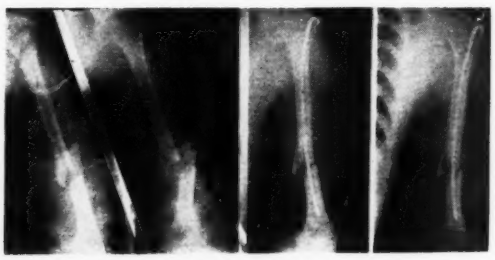

Fig. 4. — Position of distraction produced by hanging cast and the immediate postoperative position of the fracture fragments.

Case 5. — Mrs. V. S., a 39 year old white woman, was first seen in September 1945, approximately six months after injury to the left upper arm. She had been treated for six months by hanging cast to which 5 pounds of weight were attached in the elbow region. This resulted in nonunion, and as soon as the cast was removed, deformity and motion at the fracture site were noted. On her first hospital admission the fracture was exposed, excess callus removed, and fracture ends freshened, reduced and plated. A cast was applied to the arm, and she was discharged from the hospital after an essentially uneventful postoperative course. Approximately six weeks thereafter she was admitted a second time for the purpose of changing the cast. At that time the fracture fragments were in good position, being held in position by the bone plate. She was then lost sight of until March 1949, having had the cast removed by her local physician. On examination at this time the plate and fixation screw were in good condition, but nonunion persisted. Because of this she was admitted for removal of the plate and intramedullary fixation of the fracture. The postoperative course was uneventful, and she was discharged with no cast support to the arm. After the application of the intramedullary nail she could do all of her housework with no difficulty. Approximately 10 months thereafter, following the direct application of force to the left upper arm, the fracture was noted to be unstable. On roentgen examination it was observed that the nonunion persisted and that there was a complete break of the intramedullary pin at the fracture

site. She was again admitted to the hospital for the removal of the broken nail and the reapplication of the same type of intramedullary fixation. This procedure was carried out with relative ease, and she was discharged from the hospital. The nonunion at the fracture site has persisted, but she has refused any further treatment because of her ability to do all of her housework and because the arm is stable and painless. Figure 5 illustrates the course of this ununited fractured humerus in spite of the multiple methods of treatment used.

Fig. 5. — Nonunion after plate fixation. Postoperative position of fracture after intramedullary fixation. Also illustrated is a break in the intramedullary pin followed by the removal of the broken pin and the application of a similar intramedullary pin. Nonunion is still present.

This case illustrates the multiple hazards in the treating of a fracture of the humerus. Hanging cast treatment was completely unsatisfactory because of displacement of fracture fragments and distraction. This form of treatment was carried on for a period of approximately six months before the original plating procedure was performed. The plate produced a rigid fixation of the fractured fragments with the fragments in a position of slight distraction. This distraction resulted in nonunion. Intramedullary fixation of the fracture did not result in union, and the direct application of force to the arm in the presence of nonunion resulted in a fracture of the intramedullary pin. This is the only instance in our experience in which an intramedullary pin has broken. The pin fragments were removed. A similar pin was placed in the humerus but with a persisting distraction. The nonunion has persisted. This experience demonstrates that some other type of treatment is necessary in many cases of nonunion in spite of the fact that intramedullary fixation is used. Intramedullary pin fixation plus bone chips or massive on lay bone grafts will be required before union can be obtained.

Case 6. — Miss P. J., a 32 year old white woman, was first hospitalized on July 16, 1950, approximately one hour following an automobile accident in which she sustained multiple injuries. On arrival at the hospital she was in moderate shock, complaining of pain in both arms, right elbow joint area, left shoulder and left ankle. There were extensive lacerations of the forehead and bridge of the nose. She had had poliomyelitis with a residual paralysis of the left lower extremity, and the left ankle joint had been stabilized approximately two years before the accident in which she sustained the present injury.

One thousand cubic centimeters of whole blood was given immediately, and as soon as her condition improved, the extensive lacerations of the forehead and nose were debrided and closed primarily. Roentgen examination of the multiple sites of injury showed fractures of the left and right humeri and the left clavicle, and fractured dislocation of the left elbow joint with a fracture of the olecranon process. There were multiple abraded and contused wounds of the upper part of both legs and an injury to the previously stabilized left ankle joint, which radiologically gave no evidence of fracture.

Approximately four hours after admission she was operated upon, and the fractured left olecranon process and the left humerus were treated by intramedullary pin fixation. The right humerus was openly reduced and plated. The postoperative course was uneventful. She has been followed over a period of a year. Bony union of all of the fractures has been obtained, and the only disability at the present time is approximately 10 per cent disability due to weakness of the right shoulder and 25 per cent disability in the right wrist and hand secondary to inability completely to pronate and supinate the right forearm.

Fig. 6. — Illustrates the position of the original fracture fragments and the course followed to complete healing.

This case is presented chiefly to illustrate what not to do. In the pinning of the olecranon process after reduction of the fracture dislocation, an effort was made to drive a pin through the olecranon process after a drill hole was placed through the outer cortex of the bone. This resulted in splitting of the olecranon. It should be recalled that the medullary canal does not extend through the olecranon, and to apply intramedullary fixation satisfactorily a drill hole should be made completely through the olecranon process into the medullary canal of the ulna. The basic advantage of intramedullary pinning is that muscle pull is used to approximate the fracture fragments. The converse is true as regards the olecranon process in that muscle pull from the triceps is upward and tends to separate the fracture line. It is believed, therefore, that some type of additional fixation should be used to hold the fracture fragments of the olecranon process in apposition. This could be either

in the form of a circular wire through the fracture fragments or screw fixation. The intramedullary pin was started at about the junction of the upper and middle third of the humerus instead of near the tuberosity. Figure 6 shows what happens when this is done. The three point pressure is such that it results in a bowing at the fracture site resulting in a displacement of fragments. Also the pin used in this case was too small and too short for proper fixation of the humerus. In spite of all of these inefficiencies, the fractures went on to solid bony union with only a minor deformity at the fracture site.

Case 7. — Mr. D. W. H., a 31 year old, white, married logger, was hospitalized on May 2, 1951, approximately three hours after sustaining an injury to the right forearm while unloading a truck of logs. In the process of unloading the logs, a piece of metal was struck by a log, causing the metal bar to strike him across the midportion of the right forearm. On his arrival at the hospital there was a diffuse swelling and obvious deformity in the middle third of the right forearm. Motion in the hand was normal, and pulsation at the wrist was present and of good quality. There were no sensory changes distal to the area of injury. Roentgen studies revealed a both bone fracture of the right forearm.

Approximately 12 hours after admission, he was operated upon, and with employment of the technic described, intramedullary fixation of the fractured radius and ulna was performed. The postoperative course was entirely uneventful except for the diffuse swelling in the operated extremity. The fracture progressed to solid bony union without muscle atrophy, and he has been at work since four weeks following the injury. No type of cast support was used on the injured arm. Figure 7 shows the original and final positions of the fracture fragments.

Fig. 7. — The original position of fracture fragments and their immediate postoperative position.

The case illustrates an ideal method of treatment of both bone fractures of the forearm with correct application of the intramedullary nail. The comminuted fracture fragments could have been fixed in position by encircling wire, but this procedure was not considered necessary at the time of operation since they were in good position. The only postoperative complication was that of diffuse swelling in the operated extremity. This has occurred in a large percentage of our cases, and the etiology cannot be explained by us. The typical deformity of wide separation of fracture fragments and the tendency for the distal fragments to approximate each other are well illustrated.

Case 8. — Mrs. A. R. P., a 27 year old, white housewife was hospitalized on Dec. 26, 1950 after a home accident in which she slipped and fell on the floor, landing on her left hand and outstretched left forearm. There was diffuse swelling in the left forearm, and roentgen examination demonstrated a both bone fracture in the middle third of the radius and ulna in the injured extremity.

Approximately four hours after hospitalization, she was operated upon. The radius was reduced, and a Rush intramedullary nail was put in place. The fracture in the ulna was then exposed and reduced, and it was thought that fixation of this fracture would not be necessary since the radius had been stabilized. No cast was applied to the injured extremity. The fractures have progressed to solid bony union in both bones without any displacement of the reduced but nonstabilized ulna. Figure 8 shows the original and final positions of the fracture fragments.

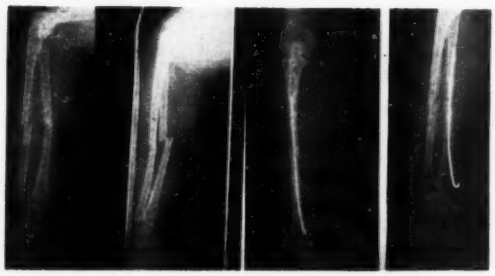

Fig. 8. — Original position of fracture fragments. The immediate postoperative position of these fragments after fixation of the radius and the reduction of the ulna.

This type of treatment is not routinely followed, but illustrates a well known principle. When one bone of a both bone forearm fracture is reduced and stabilized, the second bone can be reduced and will usually remain in a position of reduction.

Case 9. — G. H., a 55 year old, married, Negro logger, was hospitalized on Jan. 19, 1950 following an accident in which the right forearm was injured by a direct force when struck by a large moving log. He arrived at the hospital at approximately 12 o'clock noon, and on examination a diffuse swelling and an obvious deformity were noted in the midportion of the right forearm. Roentgen examination demonstrated a both bone fracture of the right forearm with great displacement of the fracture fragments. His general condition was good. Approximately two hours after admission, he was operated upon, and Rush intramedullary nails were put in place with excellent reduction and fixation of the fracture fragments (fig. 9). He was discharged from the hospital in eight days without any type of external support to the injured extremity.

The bones rapidly united in spite of a severe lymphedema type of swelling in the operated extremity. The edema resulted in a disability of eight weeks' duration.

Again, we direct attention to the unexplained postoperative complication of swelling of the extremity in which long bones have been fixed by intramedullary fixation.

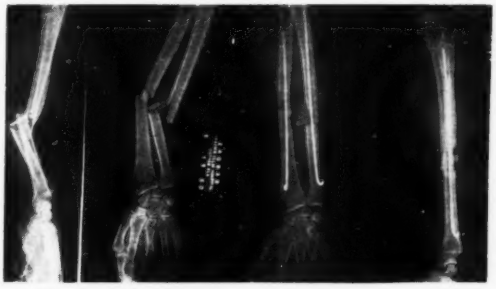

Fig. 9. — The original position of the fracture fragments and their immediate postoperative position.

Case 10. — J. B. D., a 32 year old, married, Negro logger, was hospitalized for the first time on Nov. 16, 1950, approximately one hour after sustaining an injury to the right lower leg when the injured extremity was caught between a falling limb and the trunk of a tree. Roentgen examination revealed a comminuted fracture of the tibia and fibula at the junction of the lower and middle third.

Approximately two hours after admission, the fracture in the tibia was stabilized. A Rush intramedullary nail of 3/16 inch diameter was employed, and the technic described was used (fig. 10). The postoperative course was complicated by the swelling of the extremity, an occurrence so often mentioned in this discussion.

During the follow-up period, the swelling persisted in this extremity and a large amount of callus formed at the fracture site, which produced a tumor-like area easily palpated through the skin but caused the patient no difficulty. He followed routine postoperative instructions and was returned to work in approximately four weeks in spite of the swelling and excess callous formation at the fracture site.

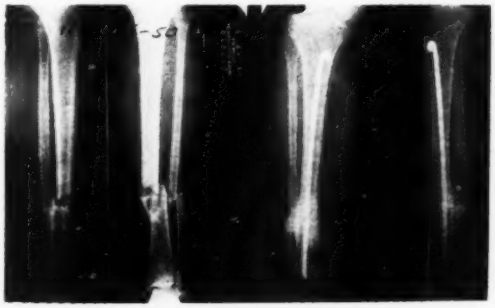

Fig. 10. — Position of fracture fragments when first seen and the progress of the fracture until healed.

On review of the roentgenogram and the operative procedure, we now think that the intramedullary pin should have been longer, thereby more rigidly stabilizing the fracture. Because of this and another similar experience, we are of the opinion that a boot cast of plaster of paris for stabilization during a period of four weeks would promote better fracture fixation and results in the treating of fractures of the tibia. This opinion is based on multiple cases whose results were similar to the case reported. The contour of the medullary canal of the tibia is such that adequate stabilization at the fracture site cannot be expected through the use of single intramedullary procedures.

Case 11. — Mr. H. C. was hospitalized on Oct. 20, 1951 following an automobile accident in which he sustained fractures of the left humerus, left radius and ulna, and right femur, and also multiple rib fractures on the left side. He was in severe shock on admission to the hospital and was given 1,000 cc. of whole blood, oxygen, and sedation. He responded satisfactorily to this resuscitation therapy and on the next day was operated upon. Intramedullary fixation of the fractures in the femur, the humerus, and radius and ulna was performed in one session. Associated with the rib fracture was an atelectasis of the lower lobe of the left lung. The postoperative convalescence was completely uneventful, and the atelectasis rapidly cleared. He was discharged from the hospital on November 8.

Had this patient been treated by conventional methods, it would hardly have been possible to get into his room because of all the frames and traction apparatus used. Through the use of intramedullary fixation, none of these gadgets was necessary, and the postoperative care resolved itself into the care of multiple soft tissue wounds. The fracture fixation also permitted early ambulation, which indirectly resulted in the rapid clearing of the atelectasis of the lower lobe of the left lung. Figure 11 illustrates the position of the fracture fragments at the time of admission to the hospital, immediately after fracture fixation, and approximately two months after the operative procedures were performed. This case demonstrates one of the principle advantages of this method of fracture treatment as applied to a patient with many major injuries.

Fig. 11A.—Position of fracture fragments of the radius and ulna when first seen, again immediately postoperative, and during the course of healing.

Fig. 11B.—Original position of the fracture fragments of the femur, again immediately postoperative, and during the course of healing.

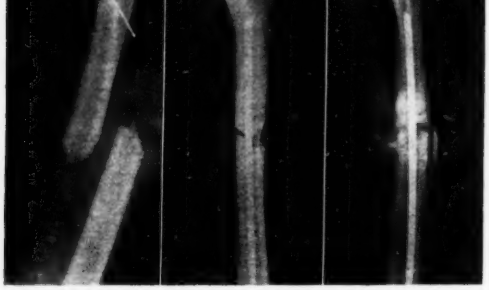

Fig. 11C.—Position of the fracture fragments of humerus when first seen, again immediately postoperative, and during its course of healing.

Summary

The principles, technics, and some of the complications of intramedullary fixation of fractures of long bones by using the Rush nail are presented. Cases illustrating the principles of fracture fixation and some of the hazards encountered in the use of the method are also presented.

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ABSTRACTS OF MEDICAL ARTICLES

A County Cares for Its Psychotics. By Sullivan G. Bedell, M.D. South. M. J. 45:222-224 (March) 1952.

Dr. Bedell describes, in his chairman's address before the Section on Neurology and Psychiatry of the Southern Medical Association, the steps taken by Duval County, consisting of Jacksonville and its environs with a population of 304,029, to care for its psychotic patients. It was customary for patients committed to the state hospital to await transfer in the county jail, sometimes for months because of the crowded conditions in the state hospital. In 1948, 100 mental patients spent a total of 1,504 days in jail awaiting transfer.

In 1945 the state legislature acted to provide a psychiatric unit as part of the Duval County Hospital, which is operated by the County Welfare Board. A one mill tax levy on real and personal property in 1946 and 1947, augmented by a federal grant of $109,595.51, yielded a total of $506,164.69. In January 1949 a modern 40-bed psychiatric hospital was ready for patients.

The custom of volunteer medical care has been carried on in the operation of this unit. Indigent patients have been cared for by the local psychiatrists on a volunteer basis. Pay patients are charged on a fee basis on an individual patient-physician relationship. Approximately one third of the patients have been pay or part pay patients and two thirds have been indigent. Almost from the opening day the unit has been filled with a list of patients awaiting admission.

During the first two years of operation, of 981 admissions, 790 of them white, 695 were classed as psychotic; the average hospital stay was 30 days; and 290 new patients attended the out-patient clinic, where 2,055 out-patient visits were made. The service has been accredited for one year residency training, and in 1951, for the first time, the staff of 12 interns rotated through psychiatry, one each month.

A unique feature is that by law the county judge can no longer place a committed patient in the county jail. If the state hospital has no bed available and he cannot be managed at home, the unit must accept him whether there is an empty bed or not. In this way state charges have the benefit of study and treatment prior to transfer, even though others on the list wait longer and longer. Approximately 35 per cent recover in the interim and return home without having to be admitted to the state hospital.

The psychiatric unit was brought into being as a result of broad community effort. To the state hospital, it means a reduction of admissions. To the individual patient and his family, its meaning is manifold. To the community, it means men and women returned to earning capacity, to citizenship, and to the status of fellow taxpayers.

Psychosomatic Aspects of Multiple Sclerosis. By Harry A. Teitelbaum, M.D., Ph.D., Bernard H. Hall, M.D., and Roger E. Phillips, M.D. Arch. Neurol. & Psychiat. 67:535-544 (April) 1952.

The authors review the dynamics of the holistic concept of personality as an organism-environment system previously elaborated by Teitelbaum as an integrative process of the cerebral cortex. They conclude that in traumatic situations, either psychogenic or organic, the normal cortical integrative processes may undergo disintegration and reintegration on a lower level, with a more limited range of adjustment of the organism within its environment. The process of cortical disintegration and reintegration is considered as the physiologic phase of the mechanism, of which the psychoanalytic process of regression is the psychologic phase.

The previous literature is reviewed to show how the various problems related to the psychosomatic aspects of multiple sclerosis have been considered in the past.

Four cases of multiple sclerosis are presented, and their psychosomatic aspects are discussed in the light of the holistic principles expressed in the introductory paragraphs.

Role of Protective Urinary Colloids in Prevention of Renal Lithiasis. By Arthur J. Butt. J. Urol. 67:450-459 (April) 1952.

The author defines a urinary calculus as a concretion formed of urinary crystalloids bound together by and incorporated in a colloidal matrix. He focuses his efforts to control calculous formation upon preventing the precipitation of colloids and thus indirectly diminishing the formation of urinary deposits rather than upon the usual method of trying to diminish the concentration of crystalloids excreted in the urine. After discussing in some detail the role of protective urinary colloids in the prevention of renal lithiasis, he presents the results of a study of a series of 185 cases of renal calculi.

Dr. Butt observes that a clearer understanding of urinary colloids helps explain in more basic physiochemical terms why adequate hydration is exceedingly important in the prevention and treatment of urinary calculi and he thinks that a better knowledge of the colloids may lead to a method of detecting which persons have a greater or lesser predisposition to the formation of urinary calculi. He reports elevated colloidal activity in the Negro race, which appears less liable to stone formation than the white race. Also, elevated colloidal activity in pregnant women may explain why pregnancy is not more frequently complicated by urinary calculi and why nulliparous women are relatively less prone to calculous formation than their parous sisters.

Since patients harboring renal calculi have decreased urinary colloids, the conclusion seems warranted that reduction or absence of these protective colloids has a definite bearing on the formation of stones in these patients.

Following injection of hyaluronidase in various groups of patients, there was a significant increase of colloidal activity in 82 per cent of the subjects. This response was greatest in Negroes, less in white persons without stones, and least in patients harboring renal calculi. An observation of particular interest was that specimens of urine from patients who had received hyaluronidase did not sediment for long periods of time as compared to specimens from the same subjects before they had received hyaluronidase.

Fractures of the Facial Bones — Standardization of Diagnosis and Treatment. By Carl S. McLemore, M.D. Ann. Otol., Rhin. & Laryng. 61:242-265 (March) 1952.

In this comprehensive study, the author points out the need for standardization of the diagnosis and treatment of fractures of the facial bones in view of the innumerable individual methods and appliances for reducing and immobilizing these fractures and the increase in their incidence during the present century. He notes that the incidence of fractures of individual bones varies considerably in series reported by civilian physicians, but is uniform in series reported in World Wars I and II.

Since there is difference of opinion as to what constitutes the facial bones, he offers a classification. Also, he suggests that the term zygoma replace the term malar bone and the term zygopalatine-maxillary bone be used to designate the maxilla, palatine bone and zygoma.

In diagnosis, complete reliance should not be placed on roentgen studies alone. To facilitate both correct diagnosis and appropriate treatment, there is no substitute for a concise knowledge of the anatomy of the bones involved. Of great aid also is a knowledge of the dynamics of fractures of these bones. With a view to standardization of diagnostic technic, Dr. McLemore outlines the important diagnostic procedures.

Presenting a series of 147 cases in this successful candidate's thesis submitted to the American Laryngological, Rhinological and Otological Society, he discusses certain fundamental principles of treatment which can be standardized. He describes a policy of adequate anesthesia and preparation for a general anesthetic, if necessary, and regards the Caldwell-Luc approach in any method of reducing fractures of the maxilla as practically mandatory. Also, consultation with an oral surgeon in all cases of fracture of the superior alveolar process or mandible and with a neurosurgeon in cases of fracture of the frontal bone is advisable in his opinion.

He describes his use of castex as a substitute for plaster in the making of head caps and his employment of a large orthopedic hook for use in reducing fractures of the arch of the zygoma. Commenting on the use of Kirschner wire, he presents an illustrative case.

Ileal Duplications. By Mark P. Fecher, M.D., Samuel M. Day, M.D., F. Gordon King, M.D. Ann. Surg. 135:555-559 (April) 1952.

The authors present 2 cases of ileal duplication, commonly called enteric or enterogenous cysts and generally occurring in infants and children. Symptoms are usually those of partial intestinal obstruction due to encroachment of adjacent intestine, but the principal symptom may be pain from distention of the cyst by large amounts of secreted fluid. Diagnosis is difficult, and treatment is surgical.

In the first of the 2 cases successfully treated, a boy aged 5 suffered recurrent symptoms of paroxysmal abdominal pain associated with paucity of physical, laboratory and roentgen findings. Palpation of a mass was not possible because of the soft cystic nature of the duplication. It was concluded that continued symptoms with only a single suggestive deformity demonstrated roentgenologically may justify surgical exploration.

The second case, occurring in an infant six weeks old, illustrates how a tubular duplication bent upon itself and occupying each side of the abdomen may simulate polycystic renal disease in an infant. A lateral roentgenogram was extremely helpful in making the diagnosis, which was confirmed at operation. The infant tolerated the operation well.

It is concluded that resection of the duplication cysts with the associated ileum and mesentery, followed by primary end to end anastomosis of the remaining ileal ends, is the treatment of choice in such cases.

Results of Lobotomy in Mental Disorders. By James G. Lyerly, M.D. South M. J. 45:793-798 (Sept.) 1952.

Dr. Lyerly describes bilateral prefrontal lobotomy as the operation of choice for the relief of certain types of severe mental disorders when convulsive shock therapy fails, or is contraindicated. It is also effective for the relief of intractable pain with nervous and mental symptoms and drug addiction. Unilateral prefrontal lobotomy may be performed in the less severe and milder forms of mental disorder, especially in the young person, when the least change of personality is desired.

The chain of symptoms relieved by the operation is that associated with affective and emotional disorders, as depression, anxiety, fear, apprehension, agitation, suicidal tendency, violence, assaultiveness and impulsive behavior. Most of these symptoms occur in involutional melancholia, agitated depression, manic depressive psychosis, anxiety and compulsion neurosis, and in certain types of schizophrenia.

Complications of a permanent nature resulting from the operation are minimal in the majority of cases. With the proper selection of cases the operative risk should not be over 1 per cent. In the series of 182 cases reported here, this operation was performed in the first 133 without a fatality. In summarizing the results in this series it is noted that the greatly and moderately improved cases represented 73.6 per cent, a proportion which should be sufficient reason to justify the operation.

Intracranial Tumors with Extracranial Metastases. By N. William Winkelman, Jr., M.D., Chester Cassel, M.D., and Benno Schlesinger, M.D. J. Neuropath. & Exper. Neurol. 11:149-166 (April) 1952.

Observing that the occurrence of extracranial metastases from intracranial tumors has been doubted by some authors and considered merely a medical curiosity by others, the authors of this article find the infrequency of this phenomenon both striking and provocative in view of the relative frequency of malignant intracranial neoplasms in man. They review the literature on this subject critically and report a case in which a fibrosarcoma of meningeal origin metastasized to the lungs.

Finding in the literature but 9 probably valid cases, they conclude that intracranial tumors infrequently give rise to extracranial metastases. To this number they add their case of fibrous meningeal tumor of over three years' duration, with pulmonary metastases, and while they find the data suggestive in the other 18 cases reported in the literature, they do not find them conclusive as to the primary character of the intracranial lesion.

In their discussion of the factors responsible for the relative infrequency of this phenomenon they state that extracranial metastases probably occur by direct invasion of intracranial venous channels and are blood borne. They add that it is unlikely that surgical intervention plays a significant role in the production of metastases.

Lymphoblastomatosis. By Thomas F. Nelson, M.D. South. M. J. 45:451-452 (May) 1952.

The author reports a case of lymphoblastomatosis and discusses the lymphoblastoma, a type of

tumor known by various names which may occur in any part of the lymphatic system. This lesion, he observes, can be classified as benign or malignant in nature, and the objective findings are few and vague, there being no relationship to leukemia because all blood pictures are normal except for the anemia probably secondary to undetected chronic bleeding from the intact mucosa. He adds that deep roentgen therapy should be used even if surgery is not contemplated.

Subjective and Objective Criteria in the Diagnosis of Meningiomas of the Brain, with Remarks as to Mortality and Useful Survival. By Gilbert Horrax, M.D., and Richard E. Strain, M.D. Ann. Surg. 135:892-898 (June) 1952.

Although meningiomas, because of their benign nature and surgical accessibility, are among the most favorable of all intracranial new growths, in some instances the insidious onset and slow progression of symptoms are so misleading that delayed diagnosis permits the lesions to become so large that their removal is difficult and hazardous. For this reason, the incidence and duration of the initial symptoms have been studied by these authors and certain special diagnostic features reviewed to aid in the detection of such tumors at as early a stage as possible.

With regard to symptomatology and diagnostic measures, this study deals only with the first consecutive 115 patients in the series, but the entire group of 168 is utilized for mortality and survival statistics. Of 1,146 verified brain tumors recorded between the years 1933 and 1946 at the Lahey Clinic, the 168 meningiomas represented 14.6 per cent.

Headache, visual disturbance and convulsions were the most frequent initial symptoms, although localized or unilateral weakness, loss of the sense of smell, ataxia and other symptoms were mentioned.

The authors also report on their study of the value and usefulness of such diagnostic aids as roentgenograms of the skull, both with and without air injections.

The operative mortality for meningiomas of the brain in this series was 13.6 per cent, but during the five year period from 1942 to 1946 inclusive, this mortality was reduced to 7.9 per cent. Seventy-eight per cent of the patients surviving their operations have lived from five to 18 years and of the five year survivors, 85 per cent were living useful lives up to the time of their last report or until their death.

Intraperitoneal Escape of Barium Enema Fluid in Perforation of Sigmoid Colon. By Ivan Isaacs, M.D. J. A. M. A. 150:645-646 (Oct. 18) 1952.

The author reports 2 cases of perforation of the sigmoid colon in which there was a free escape of barium enema fluid into the peritoneal cavity and observes that such an occurrence is probably not as rare as would be indicated by the paucity of reported cases. He discusses the predisposing causes, the commonest of which, exclusive of injury, are diverticulitis, chronic ulcerative colitis and cancer. Reports of demonstration of colon perforations by means of barium enema are rather few and mostly concern subacute perforations with local fistulas or abscess cavities rather than contamination of the general peritoneal cavity.

The radiographic appearance of this complication is described, including a linear streak of density lateral to the sigmoid or descending colon, which may be the first diagnostic sign. If the radiologist is alert to the possibility and can recognize promptly the appearance of the free escape of barium fluid from the colon, this linear parietal streak may be a helpful sign in making it possible to limit the degree of insult by immediate termination of the enema and prompt laparotomy.

Antihistamines as Local Anesthetic Agents for Urethral Manipulation. By Raymond J. Fitzpatrick, M.D., Louis M. Orr, M.D., and F. James Stubbard, M.D. J. A. M. A. 150:1092-1094 (Nov. 15) 1952.

The results of clinical trial of a 2 per cent solution of tripelennamine (pyribenzamine®) hydrochloride as a local anesthetic agent in 100 cases is presented. The use of this drug for this purpose is not suggested as a substitute for all the various anesthetics that have been time-tested and proved of great value. Particularly, however, for the patient who demonstrates an idiosyncrasy to the usual agents, it is described as another drug now available which will produce excellent anesthesia and which is, of its very essence, antiallergic in nature. Also, its use in cases of active

bleeding is clearly indicated when a cystoscopy is a necessary part of the clinical examination. Solutions of tripelennamine are stable on standing and can be sterilized by boiling or autoclaving. If this use of solutions and of special pellets of pyribenzamine for installation into the posterior urethra becomes general, the authors observe, it is probable that they will be made available commercially; meanwhile, they can be obtained for clinical investigative purposes.

In future, the authors intend to have available at all times solution, ointment, and pellets of tripelennamine. They now are using these preparations exclusively for urethral anesthesia and whenever they may be indicated for patients who show sensitivity to the usual topical anesthetic drugs. The results of their extended investigation will be the subject of a future report.

Inhibition of the Clot-Accelerating Property of Ingested Fat by Simultaneous Feeding of Sugar. By Jerome M. Waldron, Barkley Beidleman and Garfield G. Duncan. J. Applied Physiol. 4:761-763 (March) 1952.

It has been demonstrated that the oral ingestion of fat in the form of olive oil, refined corn oil and cream from cow's milk increases the coagulability of the blood of dogs and man. Cream also exhibited in vitro clot-accelerating properties, and it was suggested that this local and systemic effect of cream on the process of coagulation may be an indication for its use in the control of gastrointestinal bleeding. In view of the definite change in blood coagulation produced by these common dietary fats, the authors studied the effects of proteins, carbohydrates and combinations of these three substances. This report concerns the interesting results obtained when carbohydrate was combined with fat.

Studies are presented on human subjects in which the increased coagulability of the blood after feeding fat in the form of cream or refined corn oil was compared to the changes induced by adding either sucrose or lactose to the fat. When the sugar was fed with the fat, the clotting time did not decrease as much as when the fat was fed alone. This was not due to any anticoagulant properties of the sugar because when sugar is fed alone, it has clot-accelerating properties.

Cystic Disease of the Lungs. By Francis N. Cooke, M.D., and Brian Blades, M.D. J. Thoracic Surg. 23:546-569 (June) 1952.

This study indicates that the incidence of cystic disease of the lungs occurs much more frequently than is indicated by figures based on routine roentgenogram or necropsy examinations. A classification of the various types of cysts is proposed; they are discussed under the two broad headings of congenital pulmonary cysts and acquired cystic disease of the lungs. Ten illustrative case reports are presented. There is comment on the confusion regarding nomenclature as well as classification, and it is observed that a standardization of the nomenclature would facilitate analyses and help clarify much of the confusion associated with prognosis and treatment. Some of the many problems occurring in the surgical management of cases of this type are discussed.

NOTICE

This May Journal carries the new officers and committeemen with the exception of the president-elect, vice presidents, secretary-treasurer and editor of The Journal. The names of these officers are omitted because the May Journal went to press before the election of officers by the House of Delegates, April 29.

All new officers will be listed in your June Journal, as will the personnel of The Journal staff for 1953.

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VOLUME XXXIX
NUMBER 11

The Journal of the Florida Medical Association

OWNED AND PUBLISHED BY FLORIDA MEDICAL ASSOCIATION

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NOTICE

This May Journal carries the new officers and committeemen with the exception of the president-elect, vice presidents, secretary-treasurer and editor of The Journal. The names of these officers are omitted because the May Journal went to press before the election of officers by the House of Delegates, April 29.

All new officers will be listed in your June Journal, as will the personnel of The Journal staff for 1953.

Pediatric Trends and Changing Concepts

Half a century ago, it was largely by chance or inheritance that children grew weak or strong. Little was known about nutrition, the therapy of the period was rarely definitive, and prophylaxis was all but nonexistent. The family doctor seldom saw a child who was not seriously ill, and protracted illness required many visits to the home and not infrequently long night vigils. Some 600,000 children under 15 years of age succumbed annually from all causes, the death rate in 1900 being about 2,370 per 100,000.[1]

In 50 years, there has been a decrease of 92 per cent in deaths from all causes in children aged 1 through 4 years, and of 83 per cent in those aged 5 through 14. For the 12 principal infectious causes of death, the decrease has been 96 and 95 per cent respectively. In the former of these two groups, however, the mortality for the noninfectious causes of death, namely, congenital deformity and cancer, has increased by 95 per cent, and in the latter group by 236 per cent. As pointed out editorially in the New York State Journal of Medicine,[1] these figures call for a changing concept on the part of the practicing physician. Every effort must be made to improve his knowledge of the handling of cancer and the congenital malformations.

The apparent increase in deaths due to cancer, leukemia and Hodgkin's disease is no doubt "influenced by improved medical care with earlier and more accurate diagnosis, and the saving of about 750,000 children's lives annually in 1949 as compared to 1900." The fact that more children are living in this country each year may well alter the picture. Despite a reduction of 50 per cent in mortality during the first half of the century, it is to be remembered also that rheumatic fever and rheumatic heart disease take a toll of 5,000 deaths annually in the age group of 5 through 14 years. Too, accidents, by far the leading cause of death in children, take an increasingly disturbing toll.

These statistical trends are of moment to the physician today who treats children. Awareness of them should constantly remind him, especially the general practitioner and the pediatrician, of his supporting role in the education of his patient families regarding nutrition and available modali-

ties for improving the health of the child, both physically and emotionally; in supporting actively a program of periodic medical examination and evaluation of the apparently well child; in participating in the prophylactic immunization program; in cooperating with official and voluntary health services and school health programs; in promoting dental hygiene; in accident prevention; and in keeping himself well informed regarding available medical skills for correcting or ameliorating many of the congenital malformations.

These interests and duties are stressed now as they were not at the turn of the century. The pediatrician today spends over half of his time, it is estimated, in preventive medicine of various forms, public health procedures and education. The general practitioner is gradually becoming more and more aware of his opportunities in these fields. His increasing interest is encouraging, for from him at least 60 per cent of the children of this country receive all of their medical care. While he devotes one third of his practice to the care of children, he nevertheless directs but 30 per cent of this service to the field of health supervision and preventive medicine.[1]

The general practitioner and the pediatrician of the present day must find in the decreasing mortality and shortened period of illnesses among children not only deep satisfaction but also a spur to expand their knowledge and proficiency to conquer the problems which remain.

1. Pediatrics — Then and Now, New York State J. Med. 53:35-37 (Jan. 1) 1953.

Accident Toll in Children

In the many-sided role life metes out to the physician, the relative place of educator may be misjudged or overlooked. The general practitioner and the pediatrician have the special privilege of playing a large part in educating their children patients and their patient families. Especially is there opportunity to make parents aware of the dangers of accidental death for their children and specifically to instruct them in means to be employed in accident prevention.

The relative increase in accidental deaths among children as mortality from other causes is reduced is truly alarming. Numerically, accidents account for approximately 10,000 child deaths annually, or about one third of all the deaths from all causes. In children aged 1 through 4 years, accidental deaths in 1949 exceeded by 93 per cent the deaths from influenza and pneumonia, the second largest cause of death. That same year, in children aged 5 through 14, accidental deaths exceeded by 268 per cent the next largest cause of death, which was cancer. In 1951, motor vehicle accidents caused 39 per cent of accidental deaths, drowning 30 per cent, fire 9 per cent and various other accidents 22 per cent.[1]

Accident prevention, a relatively frequent topic in these columns, promises to be a perennially timely subject unless education and increased safeguards are better able than in the past to accomplish some reduction in the accidental death rate. It is estimated that in the next decade the school age population in the nation will increase by more than 33 per cent. With this increase, the mortality rate in this age group will inevitably climb proportionately unless physicians, educators, law enforcement officials and the community at large join with parents in strenuous preventive efforts.

1. Pediatrics — Then and Now, New York State J. Med. 53:35-37 (Jan. 1) 1953.

All That Paper Work

No wonder physicians often wonder why they continually face so much paper work. To find at least a partial answer, they have only to ask the Commission on Financing of Hospital Care. In its first progress report, this nongovernmental agency in February gave an account of a study of what is called "Third-Party Payments for Hospital Care." Those agencies which pay the hospital for services on behalf of a patient are the third parties constituting the subject of this report. And how many "third party" agencies are there? At least 20,000. Just imagine the paper work from that source alone.

Another interesting item in the commission's report was: "In the five years between 1946 and 1951, the cost to hospitals for each day of patient care rose from a national average of $9.39 to $16.-77 — an increase of 79 per cent. How much of the increased cost of hospitalization is due to expanded services; how much to higher costs of labor and materials? That is a question for the commission to answer. By what means may costs be held to a minimum, through more efficient management, without impairing services? That is another item for the commission agenda."

Future progress reports of this agency should be of general interest.

A Woman's World?

Had you noticed that ours is becoming more and more a woman's world? There are now statistics to substantiate this impression. When women remark upon the scarcity of men, their reasons for this observation may be anything but scientific. Nevertheless, they speak better than they know perhaps, for the basic fact is true. Furthermore, this dearth of the male of the species promises to increase.

For the first time in American history, there are more women than men in our nation's population. In fact, there are nearly a million and a half more, as revealed by the 1950 census, and "according to present indications, the preponderance of women will continue to grow, with attendant increase in widowhood and dependency."[1] In the age groups over 45 years, according to the census, women outnumber men 1,000 to 956. With advance in age the difference increases rapidly, reaching 855 men per 1,000 women at ages 70 and over.

Chief among the various factors contributing to the growing predominance of women over men is the higher death rate of males. The ratio of deaths in males to deaths in females had increased from 1,210 deaths in males per 1,000 deaths in females in 1930 to 1,333 in males per 1,000 in females by 1951.

Another contributing factor is the changing sex pattern of migration. In recent years, immigrants to this country have been predominantly women, many of them war brides and fiancées of American service men, and more men than women have been leaving the country. In the five years immediately following World War II, a net gain of 181,500 women over men occurred by migration. In addition, war deaths have widened the margin between the male and female populations. But for losses sustained in World War II, the present excess of American women over men would be reduced by about a third of a million.

Since these contributing factors are continuing, it appears that the excess of women will become even larger in the future. The prospect of a woman's world seems, therefore, to be good. Nevertheless, like some of our editorial colleagues, we are not among those who might be appalled at this prospect. "If there are to be more women than men in the population," comments one editor, "let them be busy about the nation's business."[2] Far from dismayed, another comments: "In these days of intense political awareness it can be but a short time before the women of the land discover in whose hands the power lies. With a clear distaff majority at the polls, an enlightened matriarchate may well supersede the possibly impending welfare state."[3]

After all, who among men of medicine would not prefer Mrs. Oveta Culp Hobby to one Oscar Ewing?

1. Numerical Predominance of Women over Men in the United States, J. A. M. A. 150:1222-1223 (Nov. 22) 1952.
2. Of This and That, New York State J. Med. 53:156 (Jan. 15) 1953.
3. Amazonia, New England J. Med. 247:863 (Nov. 27) 1952.

Lecturers for Twenty-First Annual Graduate Short Course for Doctors of Medicine

June 22-27, 1953
Jacksonville
George Washington Hotel

Medicine: Dr. Thomas M. Durant — Professor of Clinical Medicine, Temple University School of Medicine; Visiting Physician, Philadelphia General Hospital; Consultant in Internal Medicine, U. S. Naval Hospital, Philadelphia; Member of Examining Board, American Board of Internal Medicine; Member of Board of Directors, American Heart Association.

Pediatrics: Dr. Robert E. Cooke — Assistant Professor of Pediatrics and Physiology, Yale University School of Medicine; a John and Mary R. Markle Scholar; New Haven, Conn.

Obstetrics: Dr. M. Edward Davis — The Joseph Bolivar DeLee Professor of Obstetrics and Gynecology, University of Chicago and the Chicago Lying-In Hospital, Chicago.

Surgery: Dr. Kenneth W. Warren — Member of Staff of Lahey Clinic, New England Baptist Hospital, New England Deaconess Hospital; Boston.

Gynecology: Dr. Conrad G. Collins — Professor and Chairman, Department of Obstetrics and Gynecology, Tulane University of Louisiana School of Medicine; Senior Visiting Surgeon and Obstetrician and Gynecologist-in-Chief Tulane Unit, Charity Hospital of Louisiana at New Orleans; Senior Consultant in Obstetrics and Gynecology, U. S. Public Health Hospital; Senior Consultant Sara Mayo Hospital; Member of American Board of Obstetrics and Gynecology; New Orleans.

Diseases of the Chest: Dr. J. L. Wilson — Director of Clinics, The Henry Phipps Institute, The University of Pennsylvania, Philadelphia.

SCHEDULE FOR SHORT COURSE

HOUR	Monday June 22	Tuesday June 23	Wednesday June 24	Thursday June 25	Friday June 26	Saturday June 27
8:00	**Registration**					
9:00	**Medicine** "Methods of Examination of the Cardiac Patient and the Importance of Etiologic Diagnosis" Dr. Durant	**Medicine** "Congestive Failure: Pathophysiology and Therapy" Dr. Durant	**Obstetrics** "Obstetrical Factors in Perinatal Mortality" Dr. Davis	**Diseases of the Chest** "Ambulant Chemotherapy of Tuberculosis: Its Place and Practice Today" Dr. Wilson	**Gynecology** "Pelvic Infection" Dr. Collins	**Gynecology** "Uterine Prolapse" Dr. Collins
10:00	**Pediatrics** "Fluid Therapy in Children" Dr. Cooke	**Obstetrics** "The Management of the Placental Stage and Postpartum Hemorrhage" Dr. Davis	**Medicine** "The Etiology of Coronary Atherosclerosis" Dr. Durant	**Gynecology** "Ectopic Pregnancy" Dr. Collins	**Diseases of the Chest** "Obstructive Emphysema — Physiologic Pathology and Treatment" Dr. Wilson	**Surgery** "Lesions of the Biliary Tract" Dr. Warren
11:00	**Recess**	**Recess**	**Recess**	**Recess**	**Recess**	**Gynecology** "Embolism in Obstetrics and Suppurative Pelvic Thrombophlebitis" Dr. Collins
11:30	**Obstetrics** "The Modern Role of Abdominal Delivery" Dr. Davis	**Pediatrics** "Modern Treatment of Nephrosis" Dr. Cooke	**Pediatrics** "Care of the Premature" Dr. Cooke	**Surgery** "The Peptic Ulcer Problem" Dr. Warren	**Surgery** "Inflammatory Lesions of the Pancreas" Dr. Warren	**Surgery** "Inflammatory Lesions of the Small and Large Intestines" Dr. Warren
12:30	**Lunch**	**Lunch**	**Lunch**	**Lunch**	**Lunch**	
2:00	**Pediatrics** "Fluid Therapy in Children" — Cont. Dr. Cooke	**Medicine** "Rheumatic Heart Disease" Dr. Durant	**Obstetrics** "The Study of the Sterile Couple" Dr. Davis	**Diseases of the Chest** "Collapse Therapy of Tuberculosis; Relations to Surgical Treatment and Indications" Dr. Wilson	**Diseases of the Chest** "Differential Diagnosis of Chronic Pulmonary Diseases" Dr. Wilson	
3:00	**Recess**	**Recess**	**Recess**	**Recess**	**Recess**	
3:15	**Medicine** "The Cardiac Arrhythmias" Dr. Durant	**Obstetrics** "Trends in the Management of Placenta Previa at the Chicago Lying-In Hospital" Dr. Davis	**Medicine** "The Management of Coronary Disease" Dr. Durant	**Gynecology** "Malignant Disease of the Uterus" Dr. Collins	**Surgery** "Pancreatic Tumors and Carcinoma of the Stomach" Dr. Warren	
4:15	**Recess**	**Recess**	**Recess**	**Recess**	**Recess**	
4:30	**Obstetrics** "The Hormonal Factor in Abortions" Dr. Davis	**Pediatrics** "Celiac Syndrome" Dr. Cooke	**Pediatrics** "Diagnosis and Treatment of Erythroblastosis Fetalis" Dr. Cooke	**Surgery** "The Thyroid Adenoma and Malignant Disease of the Thyroid" Dr. Warren	**Gynecology** "Cervical Stump" Dr. Collins	
5:30	Cocktail Party George Washington Hotel			Boat Ride on St. Johns River, Compliments of George Washington Hotel		

Schedule for First Annual Meeting of The Florida Clinical Diabetes Association

Suwannee Hotel, St. Petersburg
May 14-15, 1953

FACULTY

Dr. F. B. Peck, Director, Medical Division, The Lilly Research Laboratories, Eli Lilly and Company, Indianapolis.

Dr. Howard Root, Associate in Medicine, Harvard Medical School; member Administrative Staff, New England Deaconess Hospital, Boston.

Dr. Sidney Davidson, Lake Worth.

Dr. Carlos P. Lamar, Miami.

Dr. Edward R. Smith, Director, Division of Nutrition and Diabetes Control, Florida State Board of Health, Jacksonville.

SCHEDULE

THURSDAY, MAY 14

Moderator — Dr. Everett M. Harrison, President Pinellas County Medical Society

8:30	Registration
9:15-10:15	Diabetes — Its General Management. Dr. Peck
10:15-11:15	Diabetic Ketosis, Treatment and Prevention. Dr. Root
11:15-11:30	Recess
11:30-12:15	Control of Diabetes. Dr. Root

Moderator — Dr. Clyde O. Anderson

2:00- 2:30	New Views on Pathology of Diabetes. Dr. Root
2:30- 3:00	Diagnostic Measures and Problems. Dr. Peck
3:00- 3:15	Recess
3:15- 4:15	Surgery and Lesions of the Extremities. Dr. Root
4:15- 4:45	Diabetic Neuropathy. Dr. Davidson
4:45- 5:15	Medical Profession, Public Education and Preventive Measures. Dr. Peck.
6:30	Dinner Meeting of Association — Lakewood Country Club

FRIDAY, MAY 15

Moderator — President of the Association

9:00- 9:30	The Various Insulins and Their Use. Dr. Peck
9:30-10:15	Diabetic Triopathy. Dr. Root
10:15-10:30	Recess
10:30-11:15	Hypoglycemia. Dr. Peck
11:15-11:45	Transient Acute Insulin Resistance. Dr. Lamar
11:45-12:15	Cardiovascular Complications. Dr. Root

Moderator — Dr. C. K. Donegan

2:00- 2:30	Childhood and Youth. Dr. Root
2:30- 3:30	Problems in Treatment of Infections and Other Complications. Dr. Peck
3:30- 3:45	Recess
3:45- 4:15	Pregnancy. Dr. Root
4:15- 5:00	Summary and Question and Answer Period. Dr. Peck and Dr. Root
8:00	Public Meeting — Williams Park

Moderator — Mr. Ray Townsend, President, Lay Diabetes Society of St. Petersburg

Speakers — Dr. Peck, Dr. Root, Dr. Smith

Seminar on Gastroenterology
June 18-20, 1953

Jacksonville
George Washington Hotel

FACULTY

Dr. H. Marvin Pollard, Professor of Internal Medicine, University of Michigan, Ann Arbor, Mich.

SCHEDULE

THURSDAY, JUNE 18

9:00- 9:30	Registration
9:30-10:15	Introductory Remarks Regarding the Evaluation of Gastrointestinal Complaints
10:15-10:30	Recess
10:30-11:30	Lesions of the Esophagus and Gastric Cardia
11:30-12:00	Gastritis and Gastroscopy
2:00- 3:30	The Problem of Gastric Carcinoma: (a) Gastric Cytology, (b) Gastric Carcinoma and (c) Differentiation Between Benign and Malignant Ulcer
3:30- 3:45	Recess
3:45- 4:45	Peptic Ulcer Management

FRIDAY, JUNE 19

9:30-10:15	Ileitis, Ileojejunitis and Nontropical Sprue
10:15-10:45	Recess
10:45-11:30	Chronic Ulcerative Colitis
11:30-12:15	Carcinoma of the Colon
2:00- 3:00	Dysenteries
3:00- 3:15	Recess
3:15- 4:15	Hepatitis, Acute and Chronic
4:15- 5:00	Pancreatitis

SATURDAY, JUNE 20

9:30-12:00	Clinic and Question Period

F. M. A. Exhibit at Orlando Fair

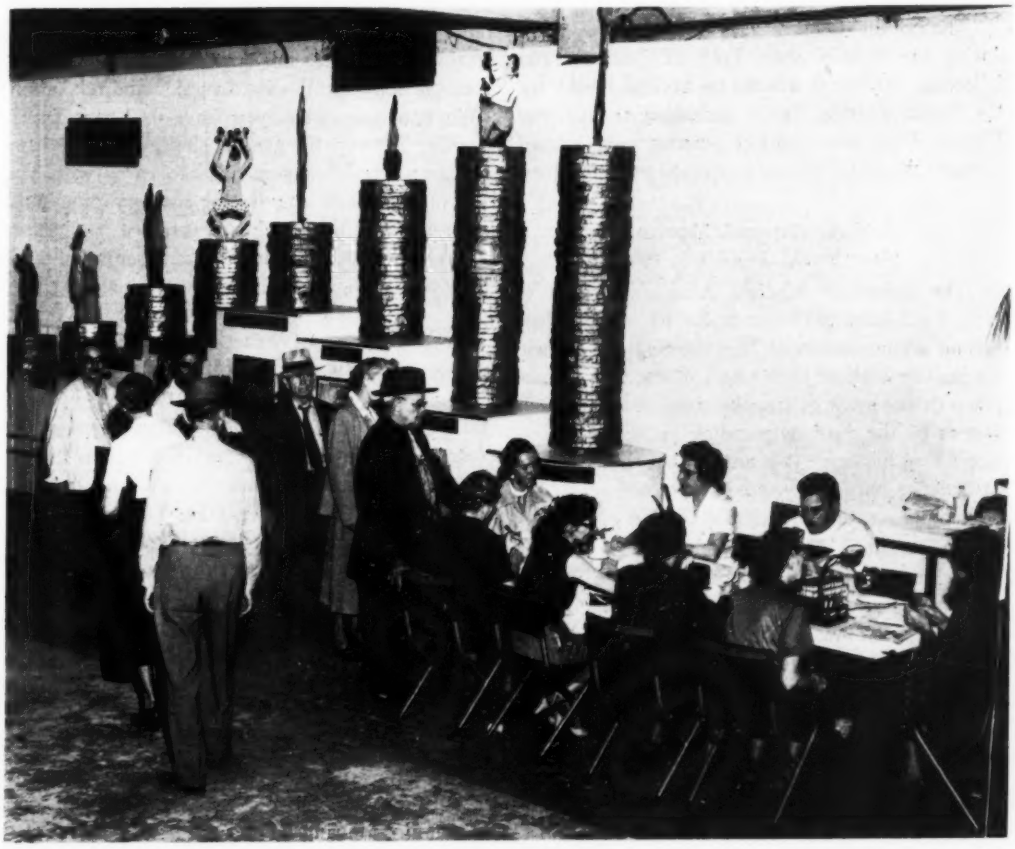
Four physicians and a staff of 88 persons combined their talents and professional skills to make the third showing of the Florida Medical Association's fair exhibit an outstanding event. Under sponsorship of the Orange County Medical Society, the exhibit was displayed at the Central Florida Exposition, Orlando, Feb. 23-28, 1953.

The showing was directed by a Committee on Arrangements within the Society. Making up the committee were Dr. Charles J. Collins, chairman; Dr. George R. Kerr; Dr. W. Dean Steward, and Dr. William S. Mitchell. Dr. Kerr supervised blood typing; Dr. Steward, blood pressure, and Dr. Mitchell assisted with the schedule for the Woman's Auxiliary. Cooperating institutions were Orange Memorial Hospital, Central Florida Blood Bank, Florida Sanitarium and Hospital and various private laboratories.

Blood grouping and typing and blood pressure determinations were offered five hours each day. All institutions contributed the services of technicians and student nurses checking blood pressures were from the Schools of Nursing of both hospitals. Assisting the technicians were members of the Woman's Auxiliary to the Orange County Medical Society.

A total of 3,522 persons were recorded as having passed through both lines. Of these 840 had their blood typed and 2,682 had their blood pressure taken. Some 8,555 pieces of literature were handed out.

Student nurses, technicians and Auxiliary members were on duty for two shifts — 2-5 p.m. and 7-9 p.m. The working time was broken at the dinner hour on recommendation of Exposition officials. The exhibit was shown from 9 a.m to 10 p.m. and literature was arranged on tables to



Visitors to the F.M.A. Fair Exhibit at the Central Florida Exposition, Orlando, Feb. 23-28, 1953, line up to have their blood typed. Student nurses check blood pressures at the opposite end of the exhibit.

make picking it up easy. Each piece had been stamped "Courtesy of the Florida Medical Association." Very little of this literature could be found in the aisles at the closing hour in contrast with the piles of material picked up from other exhibitors and cast aside.

This was the first time the exhibit had been shown in a wall booth. It was designed for center space, to be seen from all sides. The effect of its dominating colors — white, gold and green — directly against the white wall was pleasing. The 600 square feet of floor space required for its showing was also painted green, pointing up the effect.

Newspaper publicity regarding the display of the exhibit began when Mayor J. Rolfe Davis, of Orlando, was photographed having his blood typed. On the following day student nurses were pictured taking blood pressures and from this beginning nearly all stories in the papers about the Exposition mentioned the exhibit.

The exhibit was first shown in February, 1952, during the Florida State Fair, at Tampa. The following October it was set up at Tallahassee for the North Florida Fair. Including the Central Florida Exposition, 16,189 persons have passed through the blood typing and blood pressure lines.

A.M.A. Annual Meeting New York, June 1-5, 1953

The American Medical Association goes to New York City next month for its one hundred second annual session. This meeting, to be held during the week of June 1 to 5, is the first to take place in the great metropolis since 1940 and bids fair to be the most outstanding in that organization's long history. It is anticipated that the total attendance may well exceed the record set at the centennial meeting in Atlantic City in 1947.

The Waldorf Astoria will be the headquarters hotel, and the general scientific sessions will be held in the grand ballroom of the Hotel Commodore. The Grand Central Palace, only one block from the Waldorf Astoria, will house the scientific and technical exhibits.

The broad variety and scope of the subjects scheduled for presentation and discussion in the various sessions and exhibits promise a program of wide appeal suited to the needs and tastes of everyone. The scientific exhibits are expected to be of unusually high caliber, as are the technical and commercial exhibits also. The extraordinary number of applicants has necessitated rigid screening with assurance of exceptional quality which should evoke keen interest on the part of general practitioners and specialists alike.

The color telecasts piped through closed circuits to the Hendrik Hudson Room of the Roosevelt Hotel will be of special interest to all in attendance at the convention. In the over-all educational program which is the primary objective of every A.M.A. convention, this feature has now become an accepted and popular technic.

On Tuesday evening of the convention week the inaugural ceremonies of President-elect Edward J. McCormick and the new officers will take place in the auditorium of Hunter College. This meeting will be open to the public and will be broadcast over a national radio network.

President Louis H. Bauer, a New York State physician of nearby Hempstead, will deliver his valedictory on familiar ground which the nationwide profession delights to visit. Certainly New York City with its unparalleled social, cultural, business and amusement attractions offers innumerable opportunities for diversion and relaxation. "We want you, when you leave us," says Dr. J. Stanley Kenney, the general chairman of the local committee on arrangements, "to carry with you the pleasant and long-lasting memory of a most impressive and satisfying experience." Doctors by the thousands, including a representative number from Florida, will doubtless do just that.

Basic Policy for Gamma Globulin Distribution

The Office of Defense Mobilization has now determined basic policy for distribution to the states of gamma globulin under nonepidemic poliomyelitis conditions. It has notified all state and territorial health officers of the following decision:

"(1) Around May 1 each state, on request of its state heath officer, will receive an initial allocation based on 40 cc times the median number of reported cases in that state for the 5-year period ending in 1951.

"(2) Total basic allotment for the year will be determined for each state on the basis of 40 cc times the number of reported clinically diagnosed cases during the current year.

"(3) State health officers will make available to individual physicians sufficient gamma globulin

to give inoculations to patients who have had intimate contact with clinically diagnosed cases. ODM is leaving up to the individual physician the determination of what is intimate contact."

The remaining major part of gamma globulin for polio will be kept in a national pool to be sent to epidemic areas when need arises. It is expected that the final word on distribution policy under epidemic situations will be announced soon. This decision involves determining what constitutes an epidemic and what portion of the population will get inoculations in epidemic areas.

The total national supply of gamma globulin for polio this year is estimated by the Office of Defense Mobilization as between 6 and 7 million cc. Another 2 million cc. is being earmarked for measles and infectious hepatitis. This agency said that the American Red Cross is packaging the serum for polio in 10 cc. vials which will be marked "Poliomyelitis Immune Globulin."

BIRTHS AND DEATHS

Births

Dr. and Mrs. Richard A. Bagby of Tampa announce the birth of a daughter, Cynthia, on March 3, 1953.

Dr. and Mrs. Bernard L. N. Morgan of Jacksonville announce the birth of a daughter, Lesley Cynthia, on March 9, 1953.

Deaths — Members

Perez, Joseph, DeLand ..... March 6, 1953
McKinnon, Daniel A., Marianna ..... March 17, 1953
Cordes, Henry B., Frostproof ..... March 30, 1953

Deaths — Other Doctors

Elsen, Matt, Winnebago, Ill. ..... Nov. 2, 1952
Crossley, Elijah R., Chicago ..... Jan. 23, 1953
Shanks, Edgar D., Atlanta, Ga. ..... Feb. 12, 1953
Ives, W. M., Lake City ..... March 30, 1953

NOTICE

This May Journal carries the new officers and committeemen with the exception of the president-elect, vice presidents, secretary - treasurer and editor of The Journal. The names of these officers are omitted because the May Journal went to press before the election of officers by the House of Delegates, April 29.

All new officers will be listed in your June Journal, as will be the personnel of The Journal staff for 1953.

NEW MEMBERS

The following doctors have joined the State Association through their respective county medical societies.

Aliff, Robert C., Tampa
Andrews, Carl E., West Palm Beach
Archie, Edward O., (Col.), Tampa
Bennett, David D., Jr., Callahan
Carter, Gerard F., Jacksonville
Fleming, James C., Dunedin
Foster, Richard L., Ft. Lauderdale
Gayden, John M., Melbourne
Herr, Paul S., St. Petersburg
Hoyt, Thomas L., Pensacola
Kartsonis, Apostolos A., Starke
Kaufman, Harold S., Miami Beach
LaRoche, Laurent P., Cocoa
McClanathan, Donald E., St. Petersburg
Morgan, Bernard L. N., Jacksonville
Muir, Ian W., Sanford
Philips, Benjamin J., Jr., Jacksonville
Porter, Fred F., Titusville
Reddick, Hilliard R., Quincy
Reece, John W., Milton
Ross, Maurice E., Dunedin
Rosser, Robert G., Jr., Jacksonville
Schulz, Richard H., Marianna
Schulz, Sarah M., Marianna
Smith, Freddie A., (Col.), Sanford
Taylor, Willard M., Fort Lauderdale
Vaughm, Phyllis P., South Miami
Vincenti, Fred A., Howey-in-the-Hills
Williams, Reden R., (Col.), Tampa
Wimbish, Ralph M., (Col.), St. Petersburg
Winslow, Oliver P., Jr., Miami
Wolf, Earl G., Pensacola
Worsham, Richard A., Jacksonville

Medical Officers Returned

Dr. Talmadge S. Thompson, who entered military service on Feb. 12, 1951, was released from active duty on Feb. 12, 1953 with the rank of Captain, USAF, MC. His address is 504 Venezia Parkway, Venice.

STATE NEWS ITEMS

The following members of the Florida Medical Association were registered at the meeting of the Southeastern Surgical Congress held in Louisville, Ky., March 9-12: Drs. Hugh Crawford, Achille A. Monaco and Ellsworth F. Waite, Daytona Beach; John T. Stage, Jacksonville; Walter C. Jones and Joseph S. Stewart, Miami; Eugene L. Jewett and Ernest J. Stevens, Orlando; Frank E. Tugwell, Pensacola; William G. Meriwether, Plant City; Julius C. Davis, Quincy; Francis T. Holland and Charles F. James, Jr., Tallahassee; Wade C. Myers, Jr., Julian C. Pate, Jr., and Hawley H. Seiler, Tampa, and Raymond S. Roy, West Palm Beach.

Dr. Julius C. Davis of Quincy is councilor for Florida for the Southeastern Surgical Congress.

At a recent meeting of the newly installed Miami USAR Chapter of the Reserve Officers Association, Lt. Col. Paul S. Roland, MC, USAR, Miami Beach, was elected President of the Chapter.

Dr. Authur J. Butt of Pensacola recently presented a series of addresses to the Detroit Urological Society on "Newer Concepts Concerning the Etiology, Treatment and Prevention of Renal Lithiasis," and to the Toledo Academy of Medicine on the "Effect of Hyaluronidase, ACTH, Cortisone and Stress on the Protective Urinary Colloids and Their Relationship to Renal Calculous Disease." Dr. Butt was elected to honorary membership in the Detroit Society.

The Mount Sinai Hospital of Greater Miami announces its Third Annual Seminar on Recent Advances in Diagnosis and Therapy will be held May 21-23, 1953, at the Delano Hotel, Miami Beach.

Eight outstanding lecturers from leading medical schools throughout the nation will conduct the seminar. Subjects to be presented include chemotherapy, psychomatism, heart disease, the thyroid, metabolism, hematology, allergy and endocrinology. Panel discussion will follow each session.

The registration is limited to 300, and the registration fee is $20 (cocktail party, banquet, $7.50 optional).

For additional information write to Chairman, Seminar Committee, Mount Sinai Hospital of Greater Miami, Miami Beach.

Dr. Franz H. Stewart of Miami announces that the Southern Society of Cancer Cytology has been formed and two meetings have been held by those physicians who have expressed an interest in cancer cytology study. The group includes pathologists, gynecologists, those interested in special cytology work and other physicians interested in the field. There will be another meeting in conjunction with the Southern Medical Association meeting in Atlanta in November of this year. Membership in this Society is open to physicians, scientists, research workers and associate membership is available for technicians in the field of cancer cytology. The president of the association is Dr. F. Bayard Carter, Professor of Obstetrics and Gynecology, Duke University.

Dr. Cornelia M. Carithers of Jacksonville was guest speaker at a recent meeting of the Jacksonville Alliance of Delta Delta Delta.

Dr. Joshua M. Price of Live Oak will be honored on May 21 for his nearly 50 years of service to Suwannee County. The celebration will begin with a parade to be followed by a program and picnic lunch on the Live Oak football field. A memorial will be erected on the hospital grounds dedicated to Dr. Price and a framed picture of the doctor will be made and presented to him.

Dr. Charles McD. Harris of West Palm Beach spoke recently at a meeting of the district representatives of the Florida Division of the American Cancer Society in that city.

Dr. Wesley W. Wilson of Tampa spoke on occupational skin diseases, from both irritant and allergic causes, recently at a meeting of the Rotary Club of Bartow.

Drs. Irvin S. Leinbach of St. Petersburg and H. Phillip Hampton of Tampa took part in a talk on "Interrogation of Medical Witnesses" at the Legal Institute in St. Petersburg recently. Special guests of the Institute were members of the Pinellas County Medical Society.

Drs. Herbert B. Lott and Lewis T. Corum of Tampa will serve as co-chairmen of the Community Coordinating Council Adoptions Committee. The Committee coordinates agencies concerned with adoptions, welfare, medical and legal aspects and prospective foster parents.

Dr. Vincent P. Corso of Miami spoke on an American Cancer Society program sponsored by Alpha Epsilon Delta, honorary pre-medical fraternity, at the University of Miami in March. The program included two films, "Man Alive," and "A Question in Time."

Dr. Clarence M. Sharp of Jacksonville, director of the tuberculosis division, Florida State Board of Health, was principal speaker at a recent meeting of the Hillsborough County Tuberculosis and Health Association in Tampa.

Dr. John A. Mease, Jr., of Dunedin spoke at a recent meeting of the Dunedin Rotary Club.

Dr. H. Phillip Hampton of Tampa spoke on "Diet for Diabetics" at a recent meeting of the Tampa Dietetic Association.

Dr. Edward Canipelli of Jacksonville spoke on cancer at a recent meeting of the Jacksonville Civitan Club.

Dr. Joseph B. Ganey of Bradenton gave a talk illustrated with slides before members of District 19, Florida State Nurses Association, recently.

Dr. A. Judson Graves of Jacksonville spoke to the Meninak Club of that city recently on the importance of supporting the annual Cancer Crusade.

Dr. Frank G. Slaughter of Jacksonville spoke at the annual banquet of the Florida Historical Society at The Commons, Florida Southern College, during the Society's 97th Annual Convention. Dr. Slaughter's subject was "History and the Novelist."

Dr. George F. Schmitt, Jr., of Miami spoke at March meetings of the Hialeah-Miami Springs Kiwanis Club and the Business and Professional Woman's Club of Key West.

Ceremonies inaugurating A.M.A. President-elect Edward J. McCormick will be broadcast coast to coast Wednesday evening, June 3, from New York City. Although the inauguration will be held Tuesday, June 2, a later re-broadcast is necessary due to extensive radio coverage of the coronation of Queen Elizabeth II of England on this same day.

In television areas, the half-hour "March of Medicine" program, originating at the Scientific Exhibit in New York's Grand Central Palace, will be presented either Thursday or Friday evening, June 4 or 5. This television coverage will be sponsored by Smith, Kline and French, Philadelphia pharmaceutical firm.

Consult your local newspaper or radio stations for the exact time of these A.M.A. radio and television presentations.

Dr. John R. Browning of Jacksonville attended a postgraduate seminar in Urology held in Cleveland in December.

Drs. Ben J. Sheppard of Coral Gables, Edward H. Williams and Edwin G. Neal of Miami, and Melvyn J. Gardner and Lewis Capland of Miami Beach have recently appeared on the Dade County Medical Association television program, "Modern World."

Dr. W. W. Rogers of Jacksonville spoke on "Tuberculosis" at the February meeting of the Robert E. Lee High School P.-T.A.

Drs. Wilbur C. Sumner and Ashbel C. Williams of Jacksonville attended the meetings of the James Ewing Society held in New York City in March. Dr. Sumner gave a paper on "Spontaneous Regression of a Malignant Melanoma with Metastases."

Dr. Wiley M. Sams of Miami has been chosen chairman of the newly-formed Metropolitan Miami Dermatological Society. Dr. Rothwell Lefholz of Miami is vice chairman, and Dr. Bruce M. Esplin of Miami is secretary-treasurer.

Dr. Frank B. Hodnette of Pensacola entered the United States Air Force on Feb. 28, 1953.

The scientific article, "Management of an Outbreak of Anthrax," by Drs. Scottie J. Wilson, Paul W. Hughes, and Alfred E. Cronkite, all of Fort Lauderdale, which appeared in the December issue of The Journal, has been abstracted by the Medical Abstract Service. The Service is published by the Physicians' Record Co. of Chicago. This paper was read at the 1952 meeting of the Association in Hollywood last April.

Dr. Hugh A. Carithers of Jacksonville attended the meetings of the Florida Children's Commission in March in St. Augustine. He was also in Washington recently for a meeting of the Foetus and Newborn Committee of the American Academy of Pediatrics.

Dr. Frank G. Slaughter of Jacksonville spoke on how to turn "Facts into Fiction" at a joint meeting of the Lake Shore Dad's Club and the P.-T.A. in March.

Dr. Reuben B. Chrisman, Jr., of Miami presented a paper, "Cytology: An Aid in Early Diagnosis of Cancer of the Cervix," at the Twenty-First Assembly of the Southeastern Surgical Congress in Louisville, Ky., in March.

Dr. W. Tracy Haverfield of Miami spoke before the staff of the Gorgas Hospital in Panama recently on "Head Injuries — Their Diagnosis and Management."

Dr. Jack H. Bowen of Jacksonville attended the Louisiana State Dermatology meeting in New Orleans recently.

Dr. John T. Stage of Jacksonville gave a paper on "Postoperative Shock" before the Southeastern Surgical Congress Graduate Assembly in Louisville, Ky., in March.

Dr. Anne L. Hendricks of Fort Lauderdale spoke on Alcoholism at a recent meeting of the Zonta Club of that city.

Dr. Walter W. Newbern of West Palm Beach spoke on "Chest Surgery and Post Operative Care of the Patient," at a special meeting of District 9, Florida State Nurses Association, in that city recently.

Dr. Milton C. Maloney of Jacksonville spoke on "Cancer" before the March meeting of the Garden City P.-T.A.

Dr. Lawrence E. Geeslin of Jacksonville was elected to serve as a vice-president of the Community Chest Board of that city for the ensuing year. Dr. G. Dekle Taylor of Jacksonville was re-elected as a member of the Board.

Winners in the 1953 essay contest on the subject "Why the Private Practice of Medicine Furnishes This Country with the Finest Medical Care" have been announced by Dr. Eugene B. Maxwell, Tampa, chairman of the Association's Committee on Public Relations. Walter Afield, St. Petersburg, has been awarded first prize; Joyce Bartz, Fort Lauderdale, second prize, and Laura Osborn, Bradenton, third prize.

Dr. Jere W. Annis of Lakeland was chairman of the judging committee. Assisting him were Rogers Whitener and John D. Byrd, members of the faculty of Florida Southern College.

Dr. Lauren M. Sompayrac of Jacksonville presided at a luncheon meeting of the Phi Delta Theta Alumni Association of that city in March.

Dr. John F. Lovejoy of Jacksonville took part in an Institute on Health and Recreation for the Handicapped held in Jacksonville in February. It was sponsored by the Exceptional Child Department of the public school system.

WANTED — FOR SALE

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COMPONENT SOCIETY NOTES

Bay

At the regular monthly meeting of the Bay County Medical Society on March 3, Dr. Edward T. Buford, Jr., had as a guest speaker Dr. E. T. Odum, who spoke on some of the problems of Acute Rheumatic Fever. Dr. Odum is considered one of the outstanding Negro physicians. He is Chief of the Medical Department, VA Hospital, Tuskeegee, Ala.; former Professor of Medicine at Meharry Medical College, Nashville, Tenn.; and a Diplomate of the American Board of Internal Medicine.

Broward

Dr. Brendan D. Leahy, instructor of ophthalmology at Harvard University, assistant surgeon of the Massachusetts General Hospital in Boston and Chief Ophthalmologist in the Lowell, Mass., Hospital, spoke at the February meeting of the Broward County Medical Association. He spoke on the use of corneal grafts to restore sight in certain types of blindness, and also explained various surgical aspects of plastic surgical repair following removal of malignant growths in scar tissue in case of burns and accidental loss of tissue about the face and eyelids.

Dade

Dr. Franklin M. Hanger, professor of medicine at the College of Physicians and Surgeons, Columbia University, spoke to members of the Dade County Medical Association on March 16 on "Hepatic Aspects of Congestive Heart Failure." This was one of a series of scientific meetings sponsored by the Heart Association of Greater Miami.

At the April Meeting of the Dade County Medical Association, Drs. George D. Lilly, Donald W. Smith, Joseph T. Jana, Jr., and Charles F. Biggane, Jr., spoke on "Evaluation of Lumbar Sympathectomy in Arteriosclerotic Circulatory Insufficiency of Lower Extremities."

The Dade County Medical Association's first medical forum for the public opened a four to six weeks series of presentations on April 14 at the Dade County Auditorium. The forum is being sponsored jointly by the Miami Herald, Dade County Medical Association and the Dade County Health Department. The subjects for discussion will be chosen by coupons made available to the public through the Miami Herald. Drs. Christian Keedy, Joseph T. Jana, Jr., Richard C. Clay and Howard A. Engle comprise the forum committee.

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Duval

At the regular April meeting of the Duval County Medical Society, Dr. Robert B. McIver, Association president, spoke on "The Florida Medical Association and You," and Dr. Lorenzo L. Parks of Jacksonville spoke on "Are Speeding, Open Sirens and Red-Light-Breaking by Ambulances Necessary?" A movie entitled, "Migraine: Diagnosis and Treatment," was also shown.

Escambia

The Escambia County Medical Society has paid 100 per cent of its state dues for 1953.

Hillsborough

Dr. Clark David Brooks, attending surgeon at Harper Hospital and Children's Hospital in Detroit, addressed the Hillsborough County Medical Association at its March meeting on "Surgery of the Gallbladder." Dr. Brooks also is consulting surgeon of the City of Detroit, of Receiving Hospital and Highland Park General Hospital, and a professor of surgery at Wayne University Medical School.

At the April meeting of the Association, Dr. H. Dabney Kerr of Iowa City, Iowa, spoke on "Present Concepts of the Treatment of Carcinoma of the Cervix," and Dr. Ralph S. Bromer of Bryn Mawr, Pa., spoke on "The Roentgen Examination of the Gastro Intestinal Tract in Infants and Children."

Lake

The Lake County Medical Society's exhibit at the Lake County Fair and Sportsmen's Exposition held in Eustis, March 16-21, graphically portrayed "You and Your Body." Dr. J. Basil Hall, Tavares, secretary of the Society, was in charge of arrangements.

Marion

Guest speaker at the monthly meeting of the Marion County Medical Society held March 24 was Dr. Andrew A. Eggstom of Mt. Vernon, N. Y. Dr. Eggstom is president of the Medical Society of New York, and a delegate to the A.M.A. House of Delegates. He is a pathologist at the Manhattan Eye and Ear Infirmary in New York City.

Advertisement

From where I sit *by* Joe Marsh

Chip Pulls a "Pip"

Chip Hanson is a clever commercial artist. Besides doing cartoons on our paper, he picks up "free lance" drawing jobs.

Right now he's whipping up some posters for the Safety Campaign. They all have headlines like "PLAY IT SAFE!" . . . or, "A LIVE WIRE CAN START A FIRE!"

Chip looked a bit sheepish yesterday. Didn't want to tell me why. Finally he blurted out, "I feel like a dope. Here I am on this safety program and the fire inspectors tell me *my own studio's a fire trap.* I've been storing paint there for years . . ."

From where I sit, what happened to Chip could happen to anyone. He was just too busy informing everyone else about safety—not realizing his safety was threatened. Like those who fret about their neighbors—how they should practice their profession, whether they should have coffee or a glass of beer with lunch—Chip simply forgot to "draw" some obvious conclusions about himself!

Joe Marsh

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Pasco-Hernando-Citrus

The Pasco-Hernando-Citrus County Medical Society has paid 100 per cent of its state dues for 1953.

Pinellas

Members of the Pinellas County Medical Society were special guests at the Legal Institute sponsored recently by the Legal Institute of the Florida Bar Association in St. Petersburg.

Guest speaker at the regular monthly meeting of the Society on April 6 was Dr. James D. Moody of Orlando who spoke on "Surgical Approach to Heart Disease."

Polk

Dr. McGeehee Harvey, professor of medicine at Johns Hopkins University School of Medicine, was guest speaker at the March meeting of the Polk County Medical Society. His subject was "Newer Treatments." Lake Wales doctors were hosts for the meeting which was held at the Bonaire Lodge on March 11.

The fourth in a series of Medical Forums sponsored by the Polk County Medical Society, the Lakeland Ledger and the Kiwanis Club of Lakeland was held on April 13. The Forums which began March 23 with a discussion of Blood Pressure are being held in the Lakeland Auditorium. Each Forum has been limited to one hour with starting time at 8 p.m. They are opened with a 20 minute discussion of the chosen topic by a physician. The remaining time is allotted to a question and answer session. Polk county doctors sit on the panel.

The Ledger Sunday edition carries a coupon for use in submitting questions. All must be in by Saturday preceding the scheduled topic's discussion on Monday night. Announcement that the Forums would be held was made jointly by Dr. Jere W. Annis, president of the Society; Harris Sims, editor of the Lakeland Ledger, and John Wright, chairman of the Kiwanis Club's public affairs committee.

St. Johns

One hundred per cent of state dues for 1953 have been paid by the St. Johns County Medical Society.

Suwannee

The Suwannee County Medical Society has paid 100 per cent of its state dues for 1953.

Volusia

Dr. John L. Fromer, chief of allergy in dermatology of the Lahey Clinic, Boston, spoke before the Volusia County Medical Society on March 10. His subject was "Eczemas."

OBITUARIES

Milton Boyd Kay

Dr. Milton Boyd Kay of Miami Beach died at his home on Oct. 13, 1952. He was 71 years of age.

Born in Washington, Pa., on March 17, 1881, Dr. Boyd attended Washington and Jefferson College and in 1905 received the degree of Doctor of Medicine from the University of Pennsylvania School of Medicine. Upon completion of postgraduate studies at Johns Hopkins and Columbia universities, he located in Pittsburgh for a short time, where he was an associate professor at the University of Pittsburgh. He then accepted an associate professorship at Wayne University in Detroit.

Dr. Kay served in World War I as commanding officer of Base Hospital Unit 101 in France. He was a member of the American Legion and Veterans of Foreign Wars.

In 1934, because of ill health, Dr. Kay came to Florida, locating in Miami. He was active in the practice of pediatrics and later internal medicine in that city until the time of his final illness.

Dr. Kay was a member of the Dade County Medical Association and for 19 years held membership in the Florida Medical Association, with honorary status the last four years. He was also a member of the American Medical Association.

Surviving are the widow, Mrs. Cassie Kay, and three brothers, Ivan Kay of Miami, Vernon Kay of Chicago, and Carl Kay of San Diego, Calif.

(Cont'd on page 855)

Cook County Graduate School of Medicine

POSTGRADUATE COURSES — 1953

SURGERY—Intensive Course in Surgical Technic, Two Weeks, starting May 11, June 1, June 15. Surgical Technic, Surgical Anatomy & Clinical Surgery, Four Weeks, starting June 1. Surgical Anatomy & Clinical Surgery, Two Weeks, starting June 15, August 17. Gallbladder Surgery, Ten Hours, starting June 29. Surgery of Colon & Rectum, One Week, starting May 11. General Surgery, Two Weeks, starting October 12. Thoracic Surgery, One Week, starting June 8. Breast & Thyroid Surgery, One Week, starting June 22. Esophageal Surgery, One Week, starting June 22. Fractures & Traumatic Surgery, Two Weeks, starting June 15.

GYNECOLOGY—Intensive Course, Two Weeks, starting June 15. Vaginal Approach to Pelvic Surgery, One Week, starting June 8.

OBSTETRICS—Intensive Course, Two Weeks, starting June 8.

PEDIATRICS—Congenital Heart Disease, Two Weeks, starting May 18. Cerebral Palsy, Two Weeks, starting June 15.

MEDICINE—Gastroenterology, Two Weeks, starting May 18. Electrocardiography & Heart Disease, Two Weeks, starting July 13. Allergy, One Month and Six Months, by appointment.

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(Continued from page 853)

William Henry Spiers

Dr. William Henry Spiers of West Palm Beach died at the Veterans Administration Hospital in Coral Gables on Dec. 8, 1952. He was 67 years of age. Interment took place in Greenwood Cemetery in Orlando.

A native Floridian, Dr. Spiers was born in Jacksonville in 1885. He was the son of pioneer residents of that city, the late William P. and Melanie Gardner Spiers. After receiving his early education in local schools, he attended East Florida Seminary, and in 1914 was awarded the degree of Doctor of Medicine by the Emory University School of Medicine in Atlanta.

During World War I, Dr. Spiers saw duty overseas as a medical officer. From 1916 to 1921 he served as resident physician and superintendent of the Florida State Mental Hospital at Chattahoochee. Thereafter, he practiced in Orlando, specializing in neuropsychiatry, and for a time served as chief of the department of neurology at the Orange Memorial Hospital in that city. After his retirement in 1949 because of ill health, he resided in West Palm Beach.

Dr. Spiers was a member and a past president of the Orange County Medical Society. For 30 years he was a member of the Florida Medical Association, holding honorary status the last two years; in 1938 he served as president of the Association. He also held membership in the American Medical Association and other medical organizations.

Surviving are one son, James K. Spiers of West Palm Beach; three sisters, Mrs. Evelyn T. Woolery, Mrs. Leonora Dieter and Mrs. Ella S. Geary, all of Jacksonville; and several nieces and nephews.

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